



# NSF Components Product Catalogue







# NEW PRODUCTION FACILITIES WITH THE LATEST TECHNOLOGY

In 2016 we moved our production site to the new industrial park Reismühle Süd in Grafenau. New production facilities, an automated small components warehouse and an administration building were constructed on 39,000 m<sup>2</sup> of land.

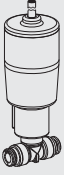
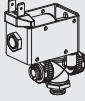

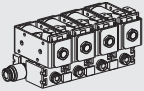
For over 46 years we have been recognised for our fittings and solenoid valves as one of the top suppliers for sophisticated applications across the entire range of industries. Our innovative research team develops the optimal solution for your requirements using the latest technologies and constantly expands our extensive catalogue range. At our manufacturing facilities in Grafenau and Langenberg we have comprehensive in-house production, ensuring high flexibility, best quality and quick response.











## MADE IN GERMANY


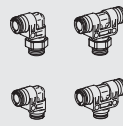
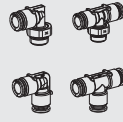
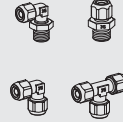
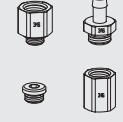
In addition to machined metal processing, the required stamped parts, various high-tech plastic and elastomer parts and the necessary tools and designs are produced in-house.

**AVS-NSF Production and Delivery Schedule**

Automatic Valves	
	<p><b>Dispensing valve Type EFC</b></p> <p>Nominal diameter: DN 0.5-3                      Pipe/tube: OD 4 / OD 6                      Operating pressure: up to 8 bar                      Medium temperature: up to 80°C</p>
Page	03-04
	<p><b>2/2 and 3/2-way MAGMA solenoid valves type ETV series 100</b></p> <p>Nominal diameter: DN 2-4                      Pipe/tube: OD 6                      Operating pressure: up to 16 bar                      Medium temperature: up to 130°C</p>
Page	05-07
	<p><b>2/2 and 3/2-way MAGMA solenoid valves type ETV series 200</b></p> <p>Nominal diameter: DN 1.5-3                      Pipe/tube: OD 4 / OD 6                      Operating pressure: up to 16 bar                      Medium temperature: up to 130°C</p>
Page	09-11
	<p><b>2/2-way MAGMA solenoid valves batteries Type ETV series 200</b></p> <p>Nominal diameter: DN 1-2.5                      Pipe/tube: OD 4 / OD 6                      Operating pressure: up to 16 bar                      Medium temperature: up to 130 °C</p>
Page	13-15

Sensors	
	<p><b>Conductivity sensor type ICS</b></p> <p>Nominal diameter: DN 4                      Pipe/tube: OD 6                      Operating pressure: up to 16 bar                      Medium temperature: up to 140°C</p>
Page	17-18
	<p><b>Pressure sensor type IPS</b></p> <p>Nominal diameter: DN 2.5-4                      Pipe/tube: OD 4 - OD 6                      Operating pressure: up to 16 bar                      Medium temperature: up to 140°C</p>
Page	19-20
	<p><b>Temperature sensor type ITS</b></p> <p>Nominal diameter: DN 2.5-4                      Pipe/tube: OD 4 / OD 6                      Operating pressure: up to 20 bar                      Medium temperature: up to 135°C</p>
Page	21-22

Function Fittings	
	<p><b>Fittings with filter PPSU</b></p> <p>Nominal diameter: DN 2.5-4                      Pipe/tube: OD 4 / OD 6                      Operating pressure: up to 16 bar</p>
Page	24
	<p><b>Non-return valves PPSU, Stainless Steel AISI 316L</b></p> <p>Nominal diameter: DN 2.5-4                      Pipe/tube: OD 6 - OD 8                      Thread: G 1/8 - G 1/4                      Operating pressure: up to 16 bar</p>
Page	24-26
	<p><b>Throttle valve PPSU</b></p> <p>Nominal diameter: DN 1.5-3                      Pipe/tube: OD 4 / OD 6                      Operating pressure: up to 20 bar</p>
Page	26
	<p><b>Shut-off valve PPSU</b></p> <p>Nominal diameter: DN 2                      Pipe/tube: OD 6                      Operating pressure: up to 16 bar</p>
Page	26
	<p><b>Quick release Coupling PPSU</b></p> <p>Nominal diameter: DN 3-4                      Pipe/tube: OD 4 / OD 6                      Operating pressure: up to 12 bar</p>
Page	27

Fittings and Accessories	
	<p><b>ELSA Push-in fittings PPSU</b></p> <p>Pipe/tube: OD 4 - 8                      Thread: M5 - G3/8                      Operating pressure: up to 20 bar</p>
Page	29-36
	<p><b>ELSA Push-in fittings PVDF</b></p> <p>Pipe/tube: OD 4 - 12                      Thread: M5 - G3/8                      Operating pressure: up to 16 bar</p>
Page	37-43
	<p><b>ELSA Push-in fittings Stainless steel AISI 316L</b></p> <p>Pipe/tube: OD 4 - 12                      Thread: M5 - G3/8                      R1/8 - R1/2                      Operating pressure: up to 20 bar</p>
Page	45-50
	<p><b>Rapid Push-on fittings Stainless steel AISI 316L</b></p> <p>Pipe/tube: 4,3/3-12/10                      Thread: G1/8 - G1/2                      R1/8 - R1/2                      Operating pressure: up to 20 bar</p>
Page	51-54
	<p><b>Fitting accessories Stainless steel AISI 316L</b></p> <p>Thread: G1/8 - G1/2                      R1/8 - R1/2                      Operating pressure: up to 50 bar</p>
Page	55-58

**More information and current prices** at [www.avs-roemer.com](http://www.avs-roemer.com)  
 We welcome your questions by phone (+49 8552 4076 300), E-Mail ([info@avs-roemer.com](mailto:info@avs-roemer.com)) or fax (+49 8552 4076 140).

## Dispensing Valve Type EFC



### Electronic Flow Control Valve

**EFC** the new electronic dispensing valve from AVS-Römer

Motorised dispensing valve for regulating the flow volume of liquids and gases.

The position of the precision throttle, which is connected directly to a linear motor, determines the flow rate.

In conjunction with the proven ELSA push-in connectors made from PPSU, this valve is also used in the food industries.

The control electronics integrated in the valve housing allow the setting of the motor via an analog voltage signal, whereby the flow rate can be adjusted almost continuously.

A set position can also be maintained unpowered due to the stepper motor technology.

#### Other features:

- less dead space
- materials and constructional design especially optimised for food applications
- low hysteresis
- simple control
- easy connection using ELSA plug-in connector

#### Variations / options:

- other seal materials
- other nominal diameters
- other voltage ranges
- other characteristics of the valve by variation of the stem tip or A/D converter characteristics



## CHARACTERISTICS

### GENERAL

<b>Constructional design</b>	Motorised precision tapered throttle
<b>Product name</b>	Electronic flow control valve
<b>Product type</b>	EFC-958-P3...-024-10
<b>Nominal diameter</b>	DN 0.5, DN 1, DN 1.5, DN 2 and DN 3
<b>Connection</b>	ELSA push-in connectors for pipe/tube OD 4 or OD 6
<b>Ambient temperature</b>	0°C to +60°C
<b>Medium temperature</b>	0°C to +80°C
<b>Medium viscosity</b>	up to approx. 25 mm <sup>2</sup> /s
<b>Body material</b>	PPSU (KTW-approved, NSF-certified)
<b>Spindle material</b>	1.4404
<b>O-ring material</b>	FKM (FDA-compliant) or EPDM (NSF-, KTW-approved)
<b>Housing material</b>	PPS GF40 (UL94-V0)
<b>Mounting method</b>	via M3 DIN 931 hexagonal bolts in the groove or spring clips with inside diameter 18-22 mm (not included)
<b>Mounting position</b>	Preferably upright
<b>Approval</b>	NSF/ANSI 169

### PNEUMATIC - HYDRAULIC

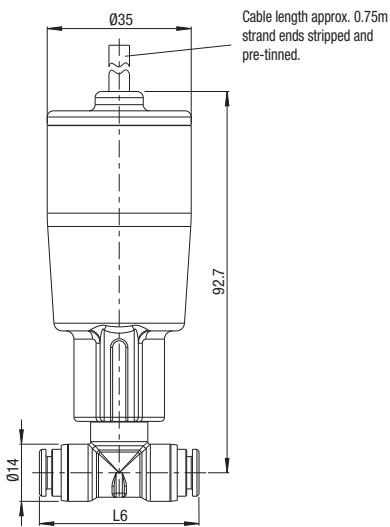
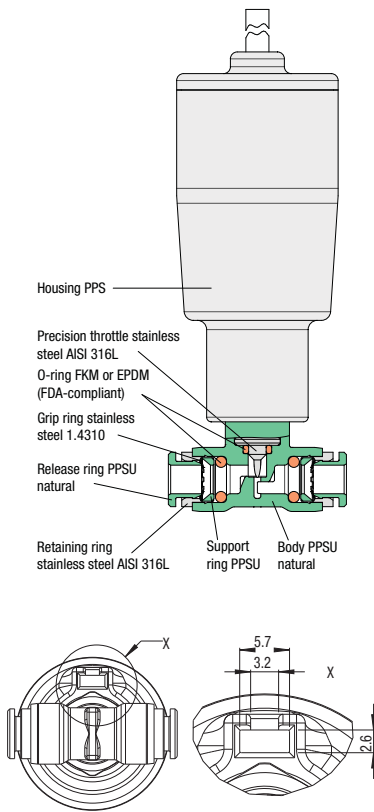
<b>Nominal pressure</b>	PN 8
<b>Pressure range</b>	0 to 8 bar
<b>Flow rate</b>	KV value, Q <sub>90</sub> value according to the table
<b>Medium</b>	Gases or liquids which do not corrode the materials specified.
<b>Contamination</b>	The upstream connection of a filter with a mesh size of 0.1 mm is recommended (e.g. SMF-958-P3...-100)
<b>Cycle duration</b>	700 ms at 30% ED (completely open to completely closed or vice versa)
<b>Response time</b>	< 150 ms
<b>Time delay</b>	After adjustment the valve does not respond until after a 400 ms time delay (shorter on request)

### ELECTRIC

<b>Nominal voltage</b>	24 V DC ± 10%
<b>Control signal</b>	Voltage: 0-10 V sampling rate: 100 ms
<b>Power consumption P<sub>max</sub></b>	Approx. 15 W during adjustment, < 1 W during standing time
<b>Duty cycle</b>	30% ED (corresponds to the proportion of active adjustment time in the overall process time)
<b>Electrical Connection</b>	0.75 m, 4-pin screened cable (LiYCY 4 x AWG 24), strand ends pre-tinned.
<b>Protection class</b>	IP65

**Caution!** PPSU should not be used in contact with aromatic hydrocarbons, oxidising acids, acetone, chlorinated hydrocarbons, ethers or ketones! Also, PPSU should not be placed directly in contact with anaerobic adhesives!

Illustration

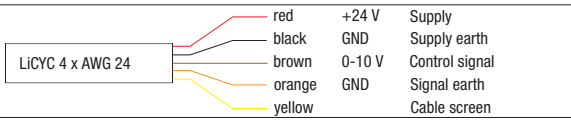


Dispensing Valve, Type EFC

Product group	PN 8	Amb. temp.	$T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$
		Med. temp.	$T_{min} 0^{\circ}C, T_{max} +80^{\circ}C$

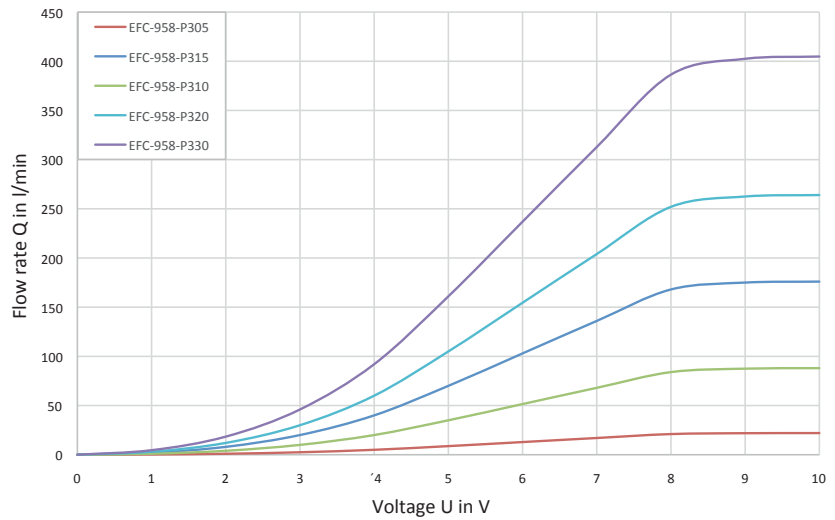


Plastic PPSU



for tube OD	DN	Kv-value water [l/min]	Qnn value air [l/min]	L6	Sealant material	Type	Order number	Price
4	0.5	0 - 0.25	5-15	38	FKM	EFC-958-P305-4FF-024-10	690531	o. r.
4	0.5	0 - 0.25	5-15	38	EP DM	EFC-958-P305-4PF-024-10	690529	o. r.
6	0.5	0 - 0.25	5-15	39	FKM	EFC-958-P305-6FF-024-10	690527	o. r.
6	0.5	0 - 0.25	5-15	39	EPDM	EFC-958-P305-6PF-024-10	690525	o. r.
4	1	0 - 0.75	5-50	38	FKM	EFC-958-P310-4FF-024-10	690532	o. r.
4	1	0 - 0.75	5-50	38	EPDM	EFC-958-P310-4PF-024-10	690530	o. r.
6	1	0 - 0.75	5-50	39	FKM	EFC-958-P310-6FF-024-10	690528	o. r.
6	1	0 - 0.75	5-50	39	EPDM	EFC-958-P310-6PF-024-10	690526	o. r.
4	1.5	0 - 1.35	5-85	38	FKM	EFC-958-P315-4FF-024-10	690510	o. r.
4	1.5	0 - 1.35	5-85	38	EPDM	EFC-958-P315-4PF-024-10	690507	o. r.
6	1.5	0 - 1.35	5-85	39	FKM	EFC-958-P315-6FF-024-10	690504	o. r.
6	1.5	0 - 1.35	5-85	39	EPDM	EFC-958-P315-6PF-024-10	690501	o. r.
4	2	0 - 1.8	5-120	38	FKM	EFC-958-P320-4FF-024-10	690511	o. r.
4	2	0 - 1.8	5-120	38	EPDM	EFC-958-P320-4PF-024-10	690508	o. r.
6	2	0 - 1.8	5-120	39	FKM	EFC-958-P320-6FF-024-10	690505	o. r.
6	2	0 - 1.8	5-120	39	EPDM	EFC-958-P320-6PF-024-10	690502	o. r.
6	3	0 - 2.4	5-190	39	FKM	EFC-958-P330-6FF-024-10	690506	o. r.
6	3	0 - 2.4	5-190	39	EPDM	EFC-958-P330-6PF-024-10	690503	o. r.

Characteristic Curve: Input Pressure 8 bar, 0-10 V, Medium: Air (open discharge)



**MAGMA Solenoid Valve Type ETV Series 100**

**MAGMA** the valve principle from AVS-Römer  
Medium separated



New high quality valve series with coaxial flow or 90° flow, in 2/2- and 3/2-way version, especially for use in the food industries and medical technology.

The solenoid operates against spring force a pivot mounted lever to which a membrane is attached. The interior of the valve is spatially and thermally separated from the solenoid system.

A particularly effective ratio of electric power to flow rate and allowable operating pressure is obtained by the optimisation of lever and spring in conjunction with the low friction transmission.

**Other features:**

- minimal dead space without dirt pockets
- easily disassembled, e.g. for cleaning
- insensitive to contamination (1.3 mm hub at seat)
- medium is barely heated by the solenoid (no lime formation!)
- emergency manual override with position indicator as standard
- materials and constructional design are particularly suited for food applications

**Variations / options:**

- other tube connector
- other material for seal
- other nominal diameter or other pressure range
- version for vacuum
- other function (e.g. 3/2-way distribution valve)
- other nominal voltage

**CHARACTERISTICS**
**GENERAL**

<b>Constructional design</b>	Lever actuated seat valve with separating membrane		
<b>Product name</b>	2/2-way solenoid valve	3/2-way solenoid valve	3/2-way solenoid valve
<b>Actuation</b>	Electric, direct acting or via emergency manual override with position indicator		
<b>Product type</b>	ETV-12x . -A .	ETV-117-C .	ETV-139-F .
<b>Function</b>	"A" in 0-position closed	"C" in 0-position closed, Outlet "2" vented	Function "F" normally closed (NC) Port 1 (A) closed, Port 4(B) open
<b>Nominal diameter</b>	DN 2 to DN 4		
<b>Connection</b>	ELSA push-in connectors for pipe/tube OD 6 (others on request)		
<b>Ambient temperature</b>	0°C to +60°C (others on request)		
<b>Medium temperature</b>	0°C to +130°C (others on request)		
<b>Medium viscosity</b>	up to approx. 35 mm <sup>2</sup> /s		
<b>Valve body and insert material</b>	Plastic PPA (KTW-, FDA- approved)		
<b>Membrane and O-ring material</b>	FKM (FDA-compliant, EPDM on request)		
<b>Union nut material</b>	bare brass		
<b>Solenoid housing material</b>	Plastic-molded (particularly deformation- and temperature-resistant thermoplastic)		
<b>Mounting method</b>	using lower nut M14x1 (included in the scope of supply)		
<b>Mounting position</b>	optional		
<b>Approval</b>	NSF/ANSI 169		
<b>PNEUMATIC - HYDRAULIC</b>			
<b>Nominal pressure [bar]</b>	up to PN 16 in accordance with the specification table		
<b>Pressure range</b>	0 bar up to allowable operating pressure OP in accordance with the specification table		
<b>Flow rate</b>	Kv-value in accordance with the specification table		
<b>Medium</b>	Gases or liquids which do not corrode the materials specified		
<b>Response time</b>	Opening time 10 to 25 ms; Closing time: 15 to 25 ms		
<b>ELECTRIC</b>			
<b>Nominal voltage</b>	24 V DC (other DC upon request)		
<b>Voltage tolerance</b>	± 10%		
<b>Nominal power P<sub>20</sub></b>	8 W		
<b>Duty cycle</b>	100% ED (DB)		
<b>Electrical Connection</b>	Spade terminals for spade connectors 6.3 x 0.8 mm, DIN 46247		
<b>Protection class</b>	IP 00		

### Illustration

### 2/2-Way Coaxial Solenoid Valve, Type ETV Series 100

Product group **56** Function "A" normally closed (NC) (closing with the flow) **Plastic FDA-compliant**

DN	Kv-value water [l/min]	for tube OD	PN	Allow. OP [bar]	Seal material	Voltage / current	Type	Order number	Price
2	1.8	6	16	0-16	FKM (FDA-compliant)	24 VDC	ETV-122-A20-6FF-024/= -R0	627003	€50.43
3	3.4	6	16	0-16	FKM (FDA-compliant)	24 VDC	ETV-122-A30-6FF-024/= -R0	627008	€50.43
4	5.4	6	8	0-8	FKM (FDA-compliant)	24 VDC	ETV-122-A40-6FF-024/= -R0	627010	€50.43

### Illustration

### 2/2-Way 90° Solenoid Valve, Type ETV Series 100

Product group **56** Function "A" normally closed (NC) (closing with the flow) **Plastic FDA-compliant**

DN	Kv-value water [l/min]	for tube OD	PN	Allow. OP [bar]	Seal material	Voltage / current	Type	Order number	Price
2	1.8	6	16	0-16	FKM (FDA-compliant)	24 VDC	ETV-125-A20-6FF-024/= -R0	627033	€50.97
3	3.4	6	16	0-16	FKM (FDA-compliant)	24 VDC	ETV-125-A30-6FF-024/= -R0	627038	€50.97
4	5.4	6	8	0-8	FKM (FDA-compliant)	24 VDC	ETV-125-A40-6FF-024/= -R0	627040	€50.97

### Illustration

### 3/2-Way Solenoid Valve, Type ETV Series 100

Product group **56** Function "C" in 0-position "P" closed, "A" discharged **Plastic FDA-compliant**

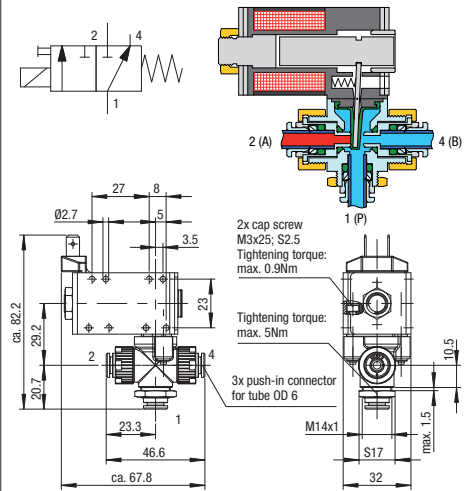
DN	Kv-value water [l/min]	for tube OD	PN	Allow. OP [bar]	Seal material	Voltage / current	Type	Order number	Price
2	1.7	6	12.5	0-12.5	FKM (FDA-compliant)	24 VDC	ETV-117-C20-6FF-024/= -R0	627103	€52.04
3	3.3	6	6	0-6	FKM (FDA-compliant)	24 VDC	ETV-117-C30-6FF-024/= -R0	627108	€52.04
4	5.3	6	3	0-3	FKM (FDA-compliant)	24 VDC	ETV-117-C40-6FF-024/= -R0	627113	€52.04



**3/2-Way Solenoid Valve, Type ETV Series 100**
**Product group 56** Function "F" in 0-position  
A closed, B open

 **Plastic FDA-compliant**

DN	Kv-value water [l/min]	for tube OD	PN	Allow. OP [bar]	Seal material	Voltage / current	Type	Order number	Price
2	1.7	6	10	0-10	FKM (FDA-compliant)	24 VDC	ETV-139-F20-6FF-024/= -R0	627153	€52.04
3	3.3	6	8	0-8	FKM (FDA-compliant)	24 VDC	ETV-139-F30-6FF-024/= -R0	627157	€52.04
4	5.3	6	6	0-6	FKM (FDA-compliant)	24 VDC	ETV-139-F40-6FF-024/= -R0	627161	€52.04

**Illustration**




AVS - Römer GmbH  
www.avs-roemer.com XXXXXXXXXX  
12V DC 8W 100% ED  
PN12.5 DN2  
ETV-117-C20-6FF-024  
NSF

AVS - Römer GmbH  
www.avs-roemer.com XXXXXXXXXX  
24V DC 8W 100% ED  
PN8 DN2.5  
ETV-222-A25-6FF-024  
NSF

AVS - Römer GmbH  
www.avs-roemer.com XXXXXXXXXX  
12V DC 8W 100% ED  
PN12.5 DN2  
ETV-117-C20-6FF-024  
NSF

**MAGMA Solenoid Valve Type ETV Series 200**

**MAGMA** the valve principle from AVS-Römer  
Medium separated



High quality valve series with coaxial flow or 90° flow, in 2/2-way and 3/2-way version, especially for use in the food industries and medical technology.

The solenoid operates against spring force a pivot mounted lever to which a membrane is attached. The interior of the valve is spatially and thermally separated from the solenoid system.

A particularly effective ratio of electric power to flow rate and allowable operating pressure is obtained by the optimisation of lever and spring in conjunction with the low friction transmission.

**Other features:**

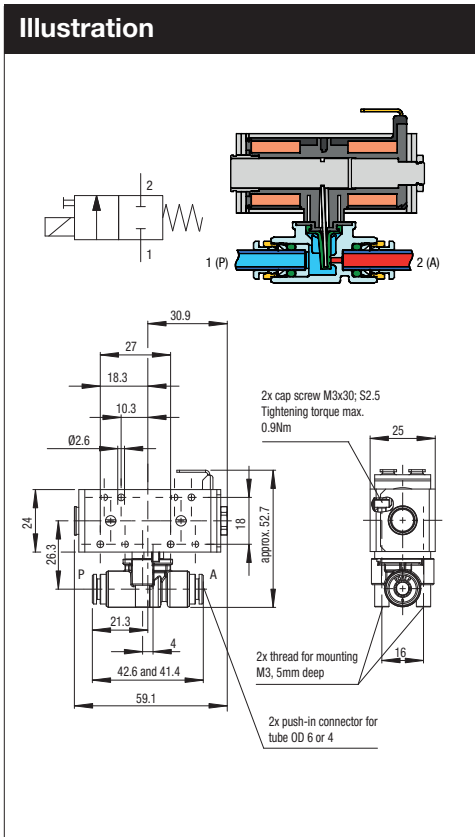
- minimal dead space
- easily disassembled, e.g. for cleaning
- insensitive to contamination (1 mm hub at seat)
- thermal insulation between the electro-magnet and the medium (no lime formation!)
- emergency manual override with position indicator as standard
- materials and constructional design especially optimised for food applications

**Variations / options:**

- other tube connections
- other materials for seal
- other nominal diameters or other pressure ranges
- versions for vacuum
- other nominal voltages

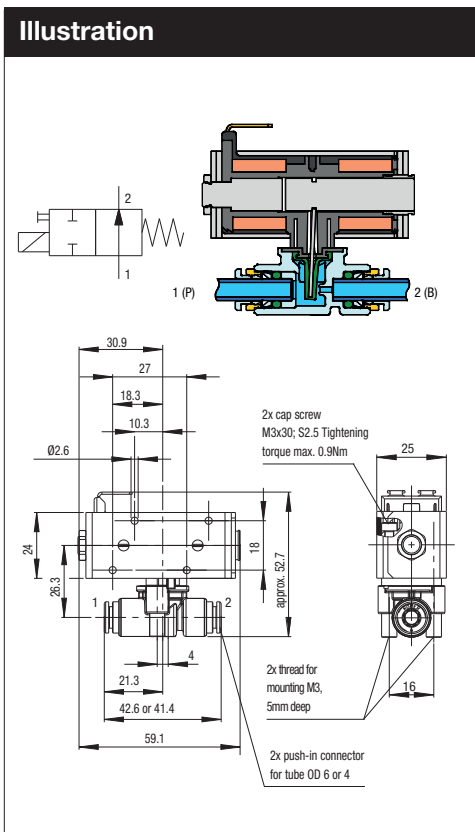
**CHARACTERISTICS**
**GENERAL**

<b>Constructional design</b>	Lever actuated seat valve with separating membrane			
<b>Product name</b>	2/2-way solenoid valve		3/2-way solenoid valve	
<b>Actuation</b>	Electric, direct acting or by emergency manual override with position indicator			
<b>Product type</b>	ETV-222 -A .	ETV-211 -B .	ETV-217 -C .	ETV-219 -F .
<b>Function</b>	"A" in 0-position closed	"B" in 0-position open	"C" in 0-position closed, Outlet "2" vented	Function "F" normally closed (NC) Port 1(A) closed, Port 4(B) open
<b>Nominal diameter</b>	DN 1.5 to DN 2.5	DN 1.5 to DN 2.5	DN 1.5 to DN 3	DN 1.5 to DN 3
<b>Connection</b>	ELSA push-in connectors for pipe/tube OD 6 or OD 4			
<b>Ambient temperature</b>	0°C to +60°C			
<b>Medium temperature</b>	0°C to +130°C			
<b>Medium viscosity</b>	up to approx. 35 mm <sup>2</sup> /s			
<b>Valve body and insert material</b>	PPA and PPSU (KTW-approved, NSF-certified)			
<b>Membrane Material</b>	EPDM or FKM (both FDA-compliant)			
<b>O-ring material</b>	FKM (FDA-compliant) or EPDM (KTW-approved, NSF-certified)			
<b>Solenoid housing material</b>	PPS (UL94-V0) plastic, insulation class "F" (155°C)			
<b>Mounting method</b>	with 2 thread press-fit inserts M3 or self-tapping screws ISO7049-ST3.5x6.5-C			
<b>Mounting position</b>	optional			
<b>Approval</b>	NSF/ANSI 169			
<b>PNEUMATIC - HYDRAULIC</b>				
<b>Nominal pressure</b>	up to PN 16 in accordance with the specification table			
<b>Pressure range</b>	0 bar up to allowable operating pressure OP in accordance with the specification table depending on duty, OP 50% duty is valid at max. SD 60 s			
<b>Flow rate</b>	Kv-value in accordance with the specification table			
<b>Medium</b>	Gases or liquids which do not corrode the materials specified			
<b>Response time</b>	Opening time 10 to 25 ms; Closing time: 10 to 25 ms			
<b>ELECTRIC</b>				
<b>Nominal voltage</b>	24 V DC			
<b>Voltage tolerance</b>	± 10%			
<b>Nominal power P<sub>20</sub></b>	6 W			
<b>Duty cycle</b>	100% ED (DB), depending on the duty cycle the power consumption decreases by up to 30%			
<b>Electrical Connection</b>	Spade terminals for spade connectors 6.3 x 0.8mm, DIN 46247			
<b>Protection class according to EN 60529</b>	IP 00			



### 2/2-Way Coaxial Solenoid Valve, Type ETV Series 200

Product group		Function "A" normally closed (NC) (closing with the flow)					NSF		Plastic FDA-compliant		
DN	Kv-value water [l/min]	for tube OD	PN	Allow. OP [bar]	Allow. OP by 50% duty [bar]	Allow. OP by 100% duty [bar]	Seal material	Voltage / current	Type	Order number	Price
1.5	1.4	4	16	16	12.5	6	EPDM	24 VDC	ETV-222-A15-4PF-024/= -U0	627351	o. r.
1.5	1.4	6	16	16	12.5	6	EPDM	24 VDC	ETV-222-A15-6PF-024/= -U0	627352	o. r.
2	2.4	4	12.5	12.5	10	5	EPDM	24 VDC	ETV-222-A20-4PF-024/= -U0	627363	o. r.
2	2.4	6	12.5	12.5	10	5	EPDM	24 VDC	ETV-222-A20-6PF-024/= -U0	627364	o. r.
2.5	2.5	4	8	8	6	3	EPDM	24 VDC	ETV-222-A25-4PF-024/= -U0	627353	o. r.
2.5	3.4	6	8	8	6	3	EPDM	24 VDC	ETV-222-A25-6PF-024/= -U0	627354	o. r.
1.5	1.4	4	16	16	12.5	6	FKM	24 VDC	ETV-222-A15-4FF-024/= -U0	627355	o. r.
1.5	1.4	6	16	16	12.5	6	FKM	24 VDC	ETV-222-A15-6FF-024/= -U0	627356	o. r.
2	2.4	4	12.5	12.5	10	5	FKM	24 VDC	ETV-222-A20-4FF-024/= -U0	627365	o. r.
2	2.4	6	12.5	12.5	10	5	FKM	24 VDC	ETV-222-A20-6FF-024/= -U0	627366	o. r.
2.5	2.5	4	8	8	6	3	FKM	24 VDC	ETV-222-A25-4FF-024/= -U0	627357	o. r.
2.5	3.4	6	8	8	6	3	FKM	24 VDC	ETV-222-A25-6FF-024/= -U0	627358	o. r.



### 2/2-Way Coaxial Solenoid Valve, Type ETV Series 200

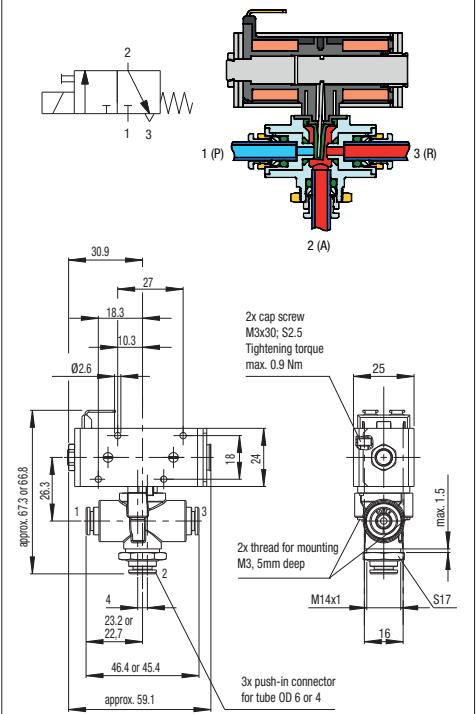
Product group		Function "B" normally open (NO) (closing with the flow)					NSF		Plastic FDA-compliant		
DN	Kv-value water [l/min]	for tube OD	PN	Allow. OP [bar]	Allow. OP by 50% duty [bar]	Allow. OP by 100% duty [bar]	Seal material	Voltage / current	Type	Order number	Price
1.5	1.4	4	12.5	12.5	12.5	12.5	EPDM	24 VDC	ETV-211-B15-4PF-024/= -U0	627401	o. r.
1.5	1.4	6	12.5	12.5	12.5	12.5	EPDM	24 VDC	ETV-211-B15-6PF-024/= -U0	627402	o. r.
2	2.4	4	8	8	8	8	EPDM	24 VDC	ETV-211-B20-4PF-024/= -U0	627409	o. r.
2	2.4	6	8	8	8	8	EPDM	24 VDC	ETV-211-B20-6PF-024/= -U0	627410	o. r.
2.5	2.5	4	4	4	4	4	EPDM	24 VDC	ETV-211-B25-4PF-024/= -U0	627403	o. r.
2.5	3.4	6	4	4	4	4	EPDM	24 VDC	ETV-211-B25-6PF-024/= -U0	627404	o. r.
1.5	1.4	4	12.5	12.5	12.5	12.5	FKM	24 VDC	ETV-211-B15-4FF-024/= -U0	627405	o. r.
1.5	1.4	6	12.5	12.5	12.5	12.5	FKM	24 VDC	ETV-211-B15-6FF-024/= -U0	627406	o. r.
2	2.4	4	8	8	8	8	FKM	24 VDC	ETV-211-B20-4FF-024/= -U0	627411	o. r.
2	2.4	6	8	8	8	8	FKM	24 VDC	ETV-211-B20-6FF-024/= -U0	627412	o. r.
2.5	2.5	4	4	4	4	4	FKM	24 VDC	ETV-211-B25-4FF-024/= -U0	627407	o. r.
2.5	3.4	6	4	4	4	4	FKM	24 VDC	ETV-211-B25-6FF-024/= -U0	627408	o. r.

**3/2-Way Coaxial Solenoid Valve, Type ETV Series 200**

 Product group **56** Function "C" normally closed (NC) Port 1(P) closed, Port 2(A) discharged

 **Plastic FDA-compliant**

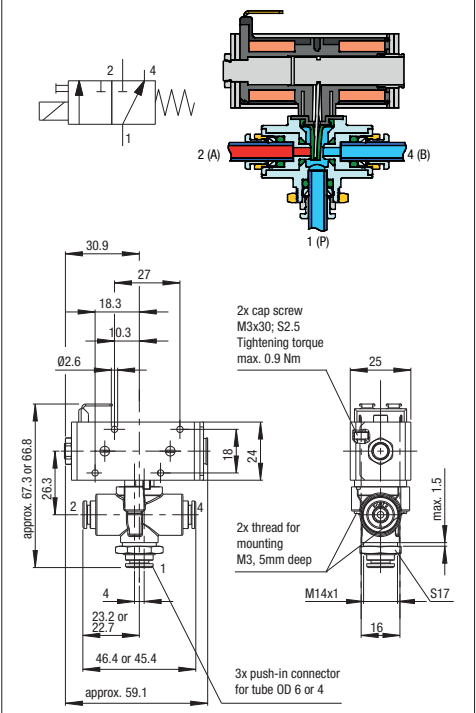
DN	Kv-value water [l/min]	for tube OD	PN	Al-low. OP [bar]	Allow. OP by 50% duty [bar]	Allow. OP by 100% duty [bar]	Seal material	Voltage / current	Type	Order number	Price
1.5	1.4	4	6	6	6	6	EPDM	24 VDC	ETV-217-C15-4PF-024/= -U0	627421	o. r.
1.5	1.5	6	6	6	6	6	EPDM	24 VDC	ETV-217-C15-6PF-024/= -U0	627424	o. r.
2	1.5	4	5	5	5	5	EPDM	24 VDC	ETV-217-C20-4PF-024/= -U0	627427	o. r.
2	1.8	6	5	5	5	5	EPDM	24 VDC	ETV-217-C20-6PF-024/= -U0	627430	o. r.
3	1.7	4	2	2	2	2	EPDM	24 VDC	ETV-217-C30-4PF-024/= -U0	627433	o. r.
3	2.5	6	2	2	2	2	EPDM	24 VDC	ETV-217-C30-6PF-024/= -U0	627436	o. r.
1.5	1.4	4	6	6	6	6	FKM	24 VDC	ETV-217-C15-4FF-024/= -U0	627422	o. r.
1.5	1.5	6	6	6	6	6	FKM	24 VDC	ETV-217-C15-6FF-024/= -U0	627425	o. r.
2	1.5	4	5	5	5	5	FKM	24 VDC	ETV-217-C20-4FF-024/= -U0	627428	o. r.
2	1.8	6	5	5	5	5	FKM	24 VDC	ETV-217-C20-6FF-024/= -U0	627431	o. r.
3	1.7	4	2	2	2	2	FKM	24 VDC	ETV-217-C30-4FF-024/= -U0	627434	o. r.
3	2.5	6	2	2	2	2	FKM	24 VDC	ETV-217-C30-6FF-024/= -U0	627437	o. r.

**Illustration**

**3/2-Way Coaxial Solenoid Valve, Type ETV Series 200**

 Product group **56** Function "F" normally closed (NC) Port 1(A) closed, Port 4(B) open

 **Plastic FDA-compliant**

DN	Kv-value water [l/min]	for tube OD	PN	Al-low. OP [bar]	Allow. OP by 50% duty [bar]	Allow. OP by 100% duty [bar]	Seal material	Voltage / current	Type	Order number	Price
1.5	1.4	4	12.5	12.5	12.5	6	EPDM	24 VDC	ETV-219-F15-4PF-024/= -U0	627451	o. r.
1.5	1.5	6	12.5	12.5	12.5	6	EPDM	24 VDC	ETV-219-F15-6PF-024/= -U0	627454	o. r.
2	1.6	4	10	10	10	6	EPDM	24 VDC	ETV-219-F20-4PF-024/= -U0	627457	o. r.
2	1.8	6	10	10	10	6	EPDM	24 VDC	ETV-219-F20-6PF-024/= -U0	627460	o. r.
3	1.8	4	4	4	4	3	EPDM	24 VDC	ETV-219-F30-4PF-024/= -U0	627463	o. r.
3	2.8	6	4	4	4	3	EPDM	24 VDC	ETV-219-F30-6PF-024/= -U0	627466	o. r.
1.5	1.4	4	12.5	12.5	12.5	6	FKM	24 VDC	ETV-219-F15-4FF-024/= -U0	627452	o. r.
1.5	1.5	6	12.5	12.5	12.5	6	FKM	24 VDC	ETV-219-F15-6FF-024/= -U0	627455	o. r.
2	1.6	4	10	10	10	6	FKM	24 VDC	ETV-219-F20-4FF-024/= -U0	627458	o. r.
2	1.8	6	10	10	10	6	FKM	24 VDC	ETV-219-F20-6FF-024/= -U0	627461	o. r.
3	1.8	4	4	4	4	3	FKM	24 VDC	ETV-219-F30-4FF-024/= -U0	627464	o. r.
3	2.8	6	4	4	4	3	FKM	24 VDC	ETV-219-F30-6FF-024/= -U0	627467	o. r.

**Illustration**




**MAGMA Solenoid Valve Battery Type ETV Series 200**

**MAGMA** the valve principle from AVS-Römer  
Medium separated

 MEDIUM  
SEPARATED


High quality valve series with coaxial flow, in 2/2-way version, especially for use in the food industries and medical technology.

The solenoid operates against spring force a pivot mounted lever to which a membrane is attached. The interior of the valve is spatially and thermally separated from the solenoid system.

A particularly effective ratio of electric power to flow rate and allowable operating pressure is obtained by the optimisation of lever and spring in conjunction with the low friction transmission.

**Other features:**

- minimal dead space
- easily disassembled, e.g. for cleaning
- insensitive to contamination (1 mm hub at seat)
- thermal insulation between the electromagnet and the medium (no lime formation!)
- emergency manual override with position indicator as standard
- materials and constructional design especially optimised for food applications

**Variations / options:**

- distribution connection left, right, both sides
- valves with varying nominal diameters in one battery
- NC and NO valves in one battery
- mixer version in preparation

**CHARACTERISTICS**
**GENERAL**

<b>Constructional design</b>	Lever actuated seat valve with separating membrane	
<b>Product name</b>	2/2-way solenoid valve, battery	
<b>Actuation</b>	electric, direct acting or by emergency manual override with position indicator	
<b>Product type</b>	ETV-2221/V-A.	ETV-2111/V.- B.
<b>Function</b>	"A" normally closed (NC) (closing with the flow)	Function "B" normally open (NO) (closing with the flow)
<b>Nominal diameter</b>	DN 1.0 to DN 2.5	DN 1.0 to DN 2.5
<b>Connection</b>	ELSA push-in connectors for pipe/tube OD 6 or OD 4	
<b>Ambient temperature</b>	0°C to +60°C	
<b>Medium temperature</b>	0°C to +130°C	
<b>Medium viscosity</b>	up to approx. 35 mm <sup>2</sup> /s	
<b>Valve body and insert material</b>	PPA and PPSU (KTW-approved, NSF-certified)	
<b>Membrane Material</b>	EPDM or FKM (both FDA-compliant)	
<b>O-ring material</b>	FKM (FDA-compliant) or EPDM (KTW-approved, NSF-certified)	
<b>Solenoid housing material</b>	PPS (UL94-V0) plastic, insulation class "F" (155°C)	
<b>Mounting method</b>	with 2 thread press-fit inserts M3 per single valve	
<b>Mounting position</b>	optional	
<b>Approval</b>	NSF/ANSI 169	
<b>PNEUMATIC - HYDRAULIC</b>		
<b>Nominal pressure</b>	up to PN 16 in accordance with the specification table	
<b>Pressure range</b>	0 bar up to allowable operating pressure OP in accordance with the specification table depending on duty, OP 50% duty is valid at max. SD 60 s	
<b>Flow rate</b>	Kv-value in accordance with the specification table	
<b>Medium</b>	Gases or liquids which do not corrode the materials specified	
<b>Response time</b>	Opening time 10 to 25 ms; Closing time: 10 to 25 ms	
<b>ELECTRIC</b>		
<b>Nominal voltage</b>	24 V DC	
<b>Voltage tolerance</b>	± 10%	
<b>Nominal power P<sub>20</sub></b>	6 W	
<b>Duty cycle</b>	100% ED (DB), depending on the duty cycle the power consumption decreases by up to 30%	
<b>Electrical Connection</b>	Spade terminals for spade connectors 6.3 x 0.8mm, DIN 46247	
<b>Protection class according to EN 60529</b>	IP 00	

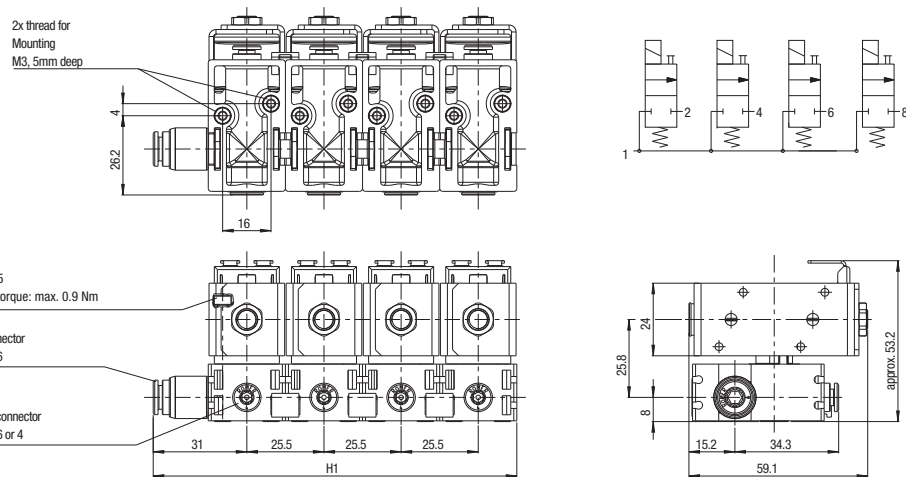
**2/2-Way Solenoid Valve Battery, Type ETV Series 200**

Product group **56** Function "A" normally closed (NC) (closing with the flow)

NSF Plastic FDA-compliant

Version	DN	Kv-value water [l/min]	for tube OD	PN	Allow. OP [bar]	Allow. OP by 50% duty [bar]	Allow. OP by 100% duty [bar]	Seal material	Voltage / current	Type	Order number	Price
	1.0	0.8	4	16	16	16	10	FKM	24 VDC	ETV-2221/V2-A10-4FF-024/=U0	627901	o. r.
								EPDM	24 VDC	ETV-2221/V2-A10-4PF-024/=U0	627902	o. r.
			6	FKM	24 VDC	ETV-2221/V2-A10-6FF-024/=U0	627903	o. r.				
				EPDM	24 VDC	ETV-2221/V2-A10-6PF-024/=U0	627904	o. r.				
	1.5	1.4	4	16	16	12.5	6	FKM	24 VDC	ETV-2221/V2-A15-4FF-024/=U0	627905	o. r.
								EPDM	24 VDC	ETV-2221/V2-A15-4PF-024/=U0	627906	o. r.
			6	FKM	24 VDC	ETV-2221/V2-A15-6FF-024/=U0	627907	o. r.				
				EPDM	24 VDC	ETV-2221/V2-A15-6PF-024/=U0	627908	o. r.				
	2.0	2.4	4	12.5	12.5	10	5	FKM	24 VDC	ETV-2221/V2-A20-4FF-024/=U0	627909	o. r.
								EPDM	24 VDC	ETV-2221/V2-A20-4PF-024/=U0	627910	o. r.
			6	FKM	24 VDC	ETV-2221/V2-A20-6FF-024/=U0	627911	o. r.				
				EPDM	24 VDC	ETV-2221/V2-A20-6PF-024/=U0	627912	o. r.				
2.5	3.4	4	8	8	6	3	FKM	24 VDC	ETV-2221/V2-A25-4FF-024/=U0	627913	o. r.	
							EPDM	24 VDC	ETV-2221/V2-A25-4PF-024/=U0	627914	o. r.	
		6	FKM	24 VDC	ETV-2221/V2-A25-6FF-024/=U0	627915	o. r.					
			EPDM	24 VDC	ETV-2221/V2-A25-6PF-024/=U0	627916	o. r.					
	1.0	0.8	4	16	16	16	10	FKM	24 VDC	ETV-2221/V3-A10-4FF-024/=U0	627917	o. r.
								EPDM	24 VDC	ETV-2221/V3-A10-4PF-024/=U0	627918	o. r.
			6	FKM	24 VDC	ETV-2221/V3-A10-6FF-024/=U0	627919	o. r.				
				EPDM	24 VDC	ETV-2221/V3-A10-6PF-024/=U0	627920	o. r.				
	1.5	1.4	4	16	16	12.5	6	FKM	24 VDC	ETV-2221/V3-A15-4FF-024/=U0	627921	o. r.
								EPDM	24 VDC	ETV-2221/V3-A15-4PF-024/=U0	627922	o. r.
			6	FKM	24 VDC	ETV-2221/V3-A15-6FF-024/=U0	627923	o. r.				
				EPDM	24 VDC	ETV-2221/V3-A15-6PF-024/=U0	627924	o. r.				
	2.0	2.4	4	12.5	12.5	10	5	FKM	24 VDC	ETV-2221/V3-A20-4FF-024/=U0	627925	o. r.
								EPDM	24 VDC	ETV-2221/V3-A20-4PF-024/=U0	627926	o. r.
			6	FKM	24 VDC	ETV-2221/V3-A20-6FF-024/=U0	627927	o. r.				
				EPDM	24 VDC	ETV-2221/V3-A20-6PF-024/=U0	627928	o. r.				
2.5	3.4	4	8	8	6	3	FKM	24 VDC	ETV-2221/V3-A25-4FF-024/=U0	627929	o. r.	
							EPDM	24 VDC	ETV-2221/V3-A25-4PF-024/=U0	627930	o. r.	
		6	FKM	24 VDC	ETV-2221/V3-A25-6FF-024/=U0	627931	o. r.					
			EPDM	24 VDC	ETV-2221/V3-A25-6PF-024/=U0	627932	o. r.					
	1.0	0.8	4	16	16	16	10	FKM	24 VDC	ETV-2221/V4-A10-4FF-024/=U0	627933	o. r.
								EPDM	24 VDC	ETV-2221/V4-A10-4PF-024/=U0	627934	o. r.
			6	FKM	24 VDC	ETV-2221/V4-A10-6FF-024/=U0	627935	o. r.				
				EPDM	24 VDC	ETV-2221/V4-A10-6PF-024/=U0	627936	o. r.				
	1.5	1.4	4	16	16	12.5	6	FKM	24 VDC	ETV-2221/V4-A15-4FF-024/=U0	627937	o. r.
								EPDM	24 VDC	ETV-2221/V4-A15-4PF-024/=U0	627938	o. r.
			6	FKM	24 VDC	ETV-2221/V4-A15-6FF-024/=U0	627939	o. r.				
				EPDM	24 VDC	ETV-2221/V4-A15-6PF-024/=U0	627940	o. r.				
	2.0	2.4	4	12.5	12.5	10	5	FKM	24 VDC	ETV-2221/V4-A20-4FF-024/=U0	627941	o. r.
								EPDM	24 VDC	ETV-2221/V4-A20-4PF-024/=U0	627942	o. r.
			6	FKM	24 VDC	ETV-2221/V4-A20-6FF-024/=U0	627943	o. r.				
				EPDM	24 VDC	ETV-2221/V4-A20-6PF-024/=U0	627944	o. r.				
2.5	3.4	4	8	8	6	3	FKM	24 VDC	ETV-2221/V4-A25-4FF-024/=U0	627945	o. r.	
							EPDM	24 VDC	ETV-2221/V4-A25-4PF-024/=U0	627946	o. r.	
		6	FKM	24 VDC	ETV-2221/V4-A25-6FF-024/=U0	627947	o. r.					
			EPDM	24 VDC	ETV-2221/V4-A25-6PF-024/=U0	627948	o. r.					

**Illustration**



Valve Design	
Description	H1
2-valve battery	69.2
3-valve battery	94.7
4-valve battery	120.2



**2/2-Way Solenoid Valve Battery, Type ETV Series 200**

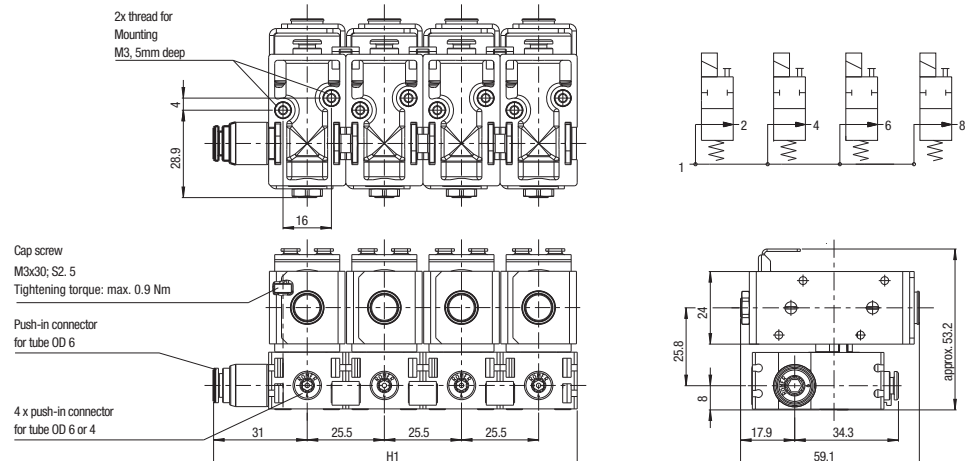
 Product group **56** "B" open in 0-position (closing with the flow)


Plastic FDA-compliant

DN	Kv-value water [l/min]	for tube OD	PN	Al-low. OP [bar]	Allow. OP by 50% duty [bar]	Allow. OP by 100% duty [bar]	Seal material	Voltage / current	Type	Order number	Price	Version
1.0	0.8	4	16	16	16	16	FKM	24 VDC	ETV-2111/V2-B10-4FF-024/=-U0	627951	o. r.	
							EPDM	24 VDC	ETV-2111/V2-B10-4PF-024/=-U0	627952	o. r.	
		FKM					24 VDC	ETV-2111/V2-B10-6FF-024/=-U0	627953	o. r.		
		EPDM					24 VDC	ETV-2111/V2-B10-6PF-024/=-U0	627954	o. r.		
1.5	1.4	4	12.5	12.5	12.5	12.5	FKM	24 VDC	ETV-2111/V2-B15-4FF-024/=-U0	627955	o. r.	
							EPDM	24 VDC	ETV-2111/V2-B15-4PF-024/=-U0	627956	o. r.	
		FKM					24 VDC	ETV-2111/V2-B15-6FF-024/=-U0	627957	o. r.		
		EPDM					24 VDC	ETV-2111/V2-B15-6PF-024/=-U0	627958	o. r.		
2.0	2.4	4	8	8	8	8	FKM	24 VDC	ETV-2111/V2-B20-4FF-024/=-U0	627959	o. r.	
							EPDM	24 VDC	ETV-2111/V2-B20-4PF-024/=-U0	627960	o. r.	
		FKM					24 VDC	ETV-2111/V2-B20-6FF-024/=-U0	627961	o. r.		
		EPDM					24 VDC	ETV-2111/V2-B20-6PF-024/=-U0	627962	o. r.		
2.5	3.4	4	4	4	4	4	FKM	24 VDC	ETV-2111/V2-B25-4FF-024/=-U0	627963	o. r.	
							EPDM	24 VDC	ETV-2111/V2-B25-4PF-024/=-U0	627964	o. r.	
		FKM					24 VDC	ETV-2111/V2-B25-6FF-024/=-U0	627965	o. r.		
		EPDM					24 VDC	ETV-2111/V2-B25-6PF-024/=-U0	627966	o. r.		
1.0	0.8	4	16	16	16	16	FKM	24 VDC	ETV-2111/V3-B10-4FF-024/=-U0	627967	o. r.	
							EPDM	24 VDC	ETV-2111/V3-B10-4PF-024/=-U0	627968	o. r.	
		FKM					24 VDC	ETV-2111/V3-B10-6FF-024/=-U0	627969	o. r.		
		EPDM					24 VDC	ETV-2111/V3-B10-6PF-024/=-U0	627970	o. r.		
1.5	1.4	4	12.5	12.5	12.5	12.5	FKM	24 VDC	ETV-2111/V3-B15-4FF-024/=-U0	627971	o. r.	
							EPDM	24 VDC	ETV-2111/V3-B15-4PF-024/=-U0	627972	o. r.	
		FKM					24 VDC	ETV-2111/V3-B15-6FF-024/=-U0	627973	o. r.		
		EPDM					24 VDC	ETV-2111/V3-B15-6PF-024/=-U0	627974	o. r.		
2.0	2.4	4	8	8	8	8	FKM	24 VDC	ETV-2111/V3-B20-4FF-024/=-U0	627975	o. r.	
							EPDM	24 VDC	ETV-2111/V3-B20-4PF-024/=-U0	627976	o. r.	
		FKM					24 VDC	ETV-2111/V3-B20-6FF-024/=-U0	627977	o. r.		
		EPDM					24 VDC	ETV-2111/V3-B20-6PF-024/=-U0	627978	o. r.		
2.5	3.4	4	4	4	4	4	FKM	24 VDC	ETV-2111/V3-B25-4FF-024/=-U0	627979	o. r.	
							EPDM	24 VDC	ETV-2111/V3-B25-4PF-024/=-U0	627980	o. r.	
		FKM					24 VDC	ETV-2111/V3-B25-6FF-024/=-U0	627981	o. r.		
		EPDM					24 VDC	ETV-2111/V3-B25-6PF-024/=-U0	627982	o. r.		
1.0	0.8	4	16	16	16	16	FKM	24 VDC	ETV-2111/V4-B10-4FF-024/=-U0	627983	o. r.	
							EPDM	24 VDC	ETV-2111/V4-B10-4PF-024/=-U0	627984	o. r.	
		FKM					24 VDC	ETV-2111/V4-B10-6FF-024/=-U0	627985	o. r.		
		EPDM					24 VDC	ETV-2111/V4-B10-6PF-024/=-U0	627986	o. r.		
1.5	1.4	4	12.5	12.5	12.5	12.5	FKM	24 VDC	ETV-2111/V4-B15-4FF-024/=-U0	627987	o. r.	
							EPDM	24 VDC	ETV-2111/V4-B15-4PF-024/=-U0	627988	o. r.	
		FKM					24 VDC	ETV-2111/V4-B15-6FF-024/=-U0	627989	o. r.		
		EPDM					24 VDC	ETV-2111/V4-B15-6PF-024/=-U0	627990	o. r.		
2.0	2.4	4	8	8	8	8	FKM	24 VDC	ETV-2111/V4-B20-4FF-024/=-U0	627991	o. r.	
							EPDM	24 VDC	ETV-2111/V4-B20-4PF-024/=-U0	627992	o. r.	
		FKM					24 VDC	ETV-2111/V4-B20-6FF-024/=-U0	627993	o. r.		
		EPDM					24 VDC	ETV-2111/V4-B20-6PF-024/=-U0	627994	o. r.		
2.5	3.4	4	4	4	4	4	FKM	24 VDC	ETV-2111/V4-B25-4FF-024/=-U0	627995	o. r.	
							EPDM	24 VDC	ETV-2111/V4-B25-4PF-024/=-U0	627996	o. r.	
		FKM					24 VDC	ETV-2111/V4-B25-6FF-024/=-U0	627997	o. r.		
		EPDM					24 VDC	ETV-2111/V4-B25-6PF-024/=-U0	627998	o. r.		

**Illustration**
**Valve Design**

Description	H1
2-valve battery	69.2
3-valve battery	94.7
4-valve battery	120.2





## Conductivity Sensor, Type ICS

Inline Conductivity Sensor

ICS the new inline conductivity sensor from AVS-Römer



Inline conductivity sensor for conductivity measurement of liquid media.

The ceramic conductivity measuring cell in conjunction with the established ELSA push-in connectors made of PPSU finds its use primarily in the food industry.

The integrated sensor electronics are temperature-compensated.

### Other features:

- minimal dead space
- temperature-compensated evaluation electronics
- materials and constructional design especially optimised for food applications

### Variations / options:

- other material for seal

## CHARACTERISTICS

### GENERAL

Constructional design	Ceramic conductivity measuring cell
Product name	Conductivity Sensor
Product type	ICS-958P3-...
Nominal diameter	DN 4
Connection	ELSA push-in connectors for pipe/tube OD 6
Ambient temperature	0°C to +60°C
Medium temperature	0°C to +140°C
Medium viscosity	up to approx. 35 mm <sup>2</sup> /s
Body material	PPSU (KTW- NSF- certified)
Measuring cell material	Al <sub>2</sub> O <sub>3</sub> , Pt, glass
O-ring material	FKM (FDA-compliant) or EPDM (NSF-, KTW-approved)
Mounting method	using spring clip, internal width Ø 30-32 (not included in scope of supply)
Mounting position	Preferably upright
Approval	NSF/ANSI 169

### PNEUMATIC - HYDRAULIC

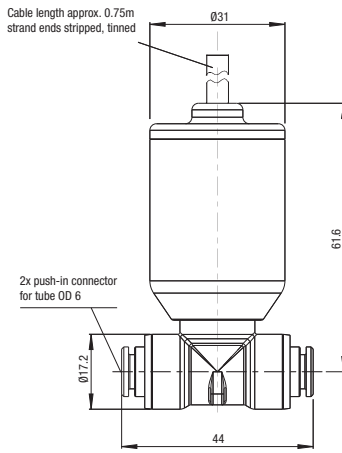
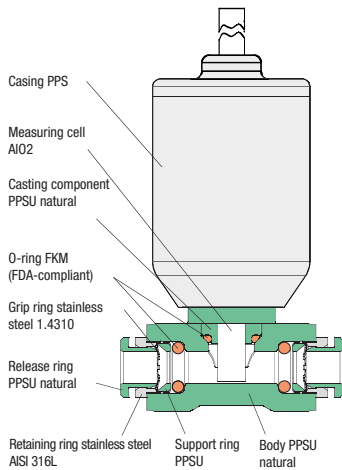
Nominal pressure	PN 16
Pressure range	Technical vacuum up to maximum allowable operating pressure OP in accordance with the specification table
Flow rate	Kv-value in accordance with the specification table
Medium	Gases or liquids which do not corrode the materials specified

### ELECTRIC

Supply voltage	9 to 36 V DC	
Conductivity output signal	0 to 5 V DC (linear over the entire measurement range)	
Temperature output signal	0 to 5 V DC (linear over the entire measurement range)	
Electrical Connection	4-pole screened cable 0.75 m (LiYCY 4xAWG24)	
Protection class	IP65	
MEASURING CELL	Conductivity	Temperature
Measuring range	0.2 to 20 mS/cm	0 to 140°C
Accuracy	± 2% F.S.	± 1°C
Temperature error	± 1% F.S.	-
Response time	< 1 s	< 1 s

**Caution!** PPSU should not be used in contact with aromatic hydrocarbons, oxidising acids, acetone, chlorinated hydrocarbons, ethers or ketones! Also, PPSU should not be placed directly in contact with anaerobic adhesives!

**Illustration**

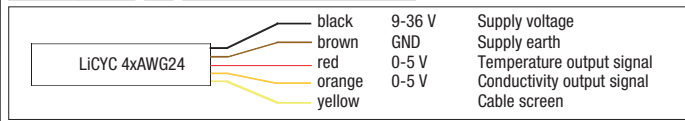


**Conductivity Sensor, Type ICS**

Product group **PN 16** Max. Allow. OP at ambient temp.  $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$

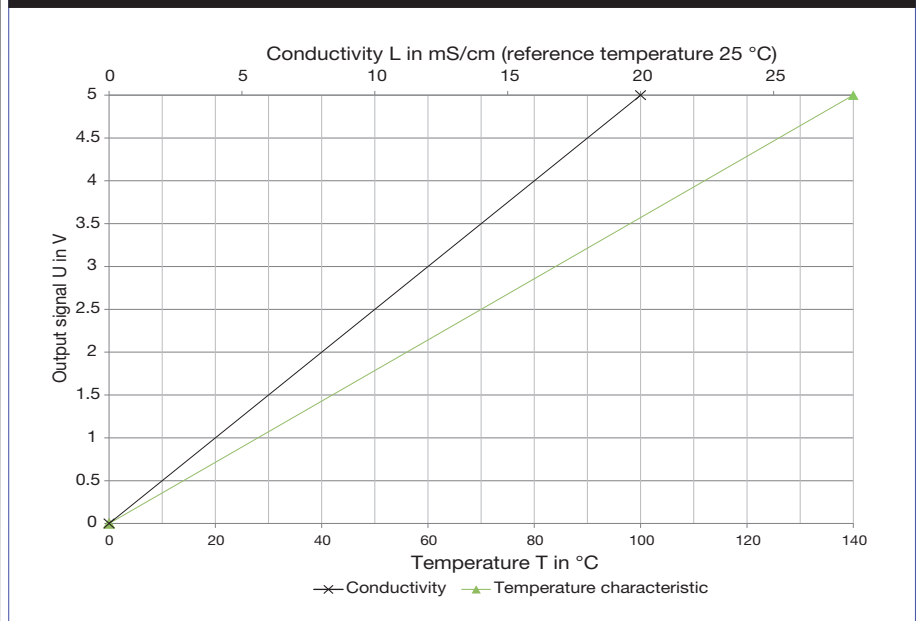


Plastic PPSU



for tube OD	DN	Kv-value water [l/min]	Allow. OP [bar] at medium temp.			Seal material	Type	Order number	Price
			20°C	100°C	140°C				
6	4	8.1	16	12	6	FKM (FDA-compliant)	ICS-958P3-6FF	390602	o. r.
6	4	8.1	16	12	6	EPDM (FDA-compliant)	ICS-958P3-6PF	390601	o. r.

**Characteristic Curve 0-20 mS/cm or 0-140°C 0-5 V**



## Pressure Sensor, Type IPS

Inline Pressure Sensor

**IPS** the new inline pressure sensor from AVS-Römer



Inline pressure sensor for measuring pressure of liquid and gaseous media.

The ceramic pressure measuring cell combined with the proven ELSA push-in connector made from PPSU is mainly used in the food industries.

### Other features:

- minimal dead space
- temperature-compensated elavation electronics
- materials and constructional design especially optimised for food applications

### Variations / options:

- other tube connections
- other material for seal
- other pressure range

## CHARACTERISTICS

### GENERAL

<b>Constructional design</b>	Ceramic pressure measuring cell
<b>Product name</b>	Inline pressure sensor
<b>Product type</b>	IPS-958P3-...
<b>Nominal diameter</b>	DN 2.5 up to DN 6
<b>Connection</b>	ELSA plug fittings for pipe/tube OD 4 to OD 8
<b>Ambient temperature</b>	0°C to +60°C
<b>Medium temperature</b>	0°C to +140°C
<b>Medium viscosity</b>	up to approx. 35 mm <sup>2</sup> /s
<b>Body material</b>	PPSU (KTW-approved, NSF-certified)
<b>Measuring cell material</b>	Al <sub>2</sub> O <sub>3</sub>
<b>O-ring material</b>	FKM (FDA-compliant) or EPDM (NSF-, KTW-approved)
<b>Mounting method</b>	by spring clip, internal width Ø18-22 mm (not included in scope of supply)
<b>Mounting position</b>	Preferably upright
<b>Approval</b>	NSF/ANSI 169

### PNEUMATIC - HYDRAULIC

<b>Nominal pressure</b>	up to PN 16 in accordance with the specification table
<b>Pressure range</b>	0 bar up to allowable operating pressure OP in accordance with the specification table
<b>Flow rate</b>	Kv-value in accordance with the specification table
<b>Medium</b>	Gases or liquids which do not corrode the materials specified

### ELECTRIC

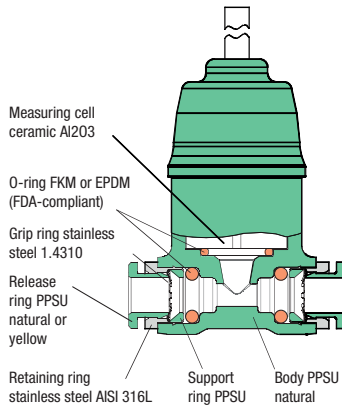
<b>Supply voltage</b>	5 V DC
<b>Voltage tolerance</b>	± 10%
<b>Output voltage</b>	0.5-4.5 V DC (ratiometric)
<b>Electrical Connection</b>	0.75 m 3-pole screened cable (LiYCY 3 x AWG 26), strand ends pre-tinned.
<b>Protection class</b>	IP65

### ACCURACY

<b>Total error</b>	± 1.5 % FS
<b>Temperature error zero point</b>	< ± 0.02 % FS/K
<b>Temperature margin of error</b>	-0.012 % FS/K
<b>Response time</b>	< 2 ms

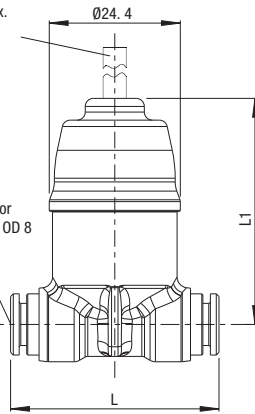
**Caution!** PPSU should not be used in contact with aromatic hydrocarbons, oxidising acids, acetone, chlorinated hydrocarbons, ethers or ketones! Also, PPSU should not be placed directly in contact with anaerobic adhesives!

Illustration



Cable length approx. 0.75m strand ends stripped, tinned

2x push-in connector for tube OD 4 up to OD 8



Pressure Sensor, Type IPS

Product group [redacted] Max. Allow. OP at ambient temp.  $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$

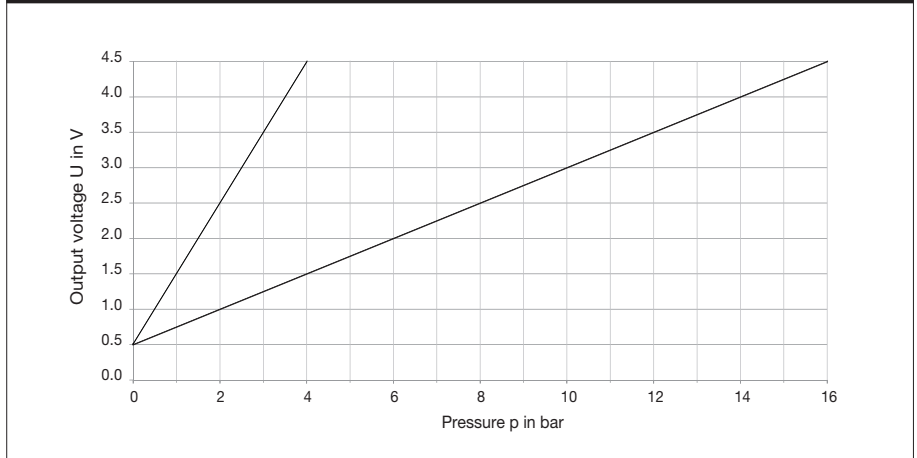


Plastic PPSU



for tube OD	DN	Kv-value water [l/min]	PN	Allow. OP [bar] at medium temp.			L	L1	Seal material	Type	Order number	Price
				20°C	100°C	140°C						
4	2.5	2.4	4	4	4	4	38	42	FKM (FDA-compliant)	IPS-958P3-4FF-04	390564	o. r.
4	2.5	2.4	4	4	4	4	38	42	EPDM (FDA-compliant)	IPS-958P3-4PF-04	390565	o. r.
4	2.5	2.4	16	16	12	6	38	42	FKM (FDA-compliant)	IPS-958P3-4FF-16	390553	o. r.
4	2.5	2.4	16	16	12	6	38	42	EPDM (FDA-compliant)	IPS-958P3-4PF-16	390554	o. r.
6	4	8.1	4	4	4	4	39	42	FKM (FDA-compliant)	IPS-958P3-6FF-04	390562	o. r.
6	4	8.1	4	4	4	4	39	42	EPDM (FDA-compliant)	IPS-958P3-6PF-04	390563	o. r.
6	4	8.1	16	16	12	6	39	42	FKM (FDA-compliant)	IPS-958P3-6FF-16	390551	o. r.
6	4	8.1	16	16	12	6	39	42	EPDM (FDA-compliant)	IPS-958P3-6PF-16	390552	o. r.
8	6	24	4	4	4	4	45	43	FKM (FDA-compliant)	IPS-958P3-8FF-04	390576	o. r.
8	6	24	4	4	4	4	45	43	EPDM (FDA-compliant)	IPS-958P3-8PF-04	390577	o. r.
8	6	24	16	16	12	6	45	43	FKM (FDA-compliant)	IPS-958P3-8FF-16	390572	o. r.
8	6	24	16	16	12	6	45	43	EPDM (FDA-compliant)	IPS-958P3-8PF-16	390573	o. r.

Characteristic Curve 0-4 bar or 0-16 bar 0.5-4.5 V (ratiometric)



## Temperature Sensor, Type ITS



Inline **T**emperature **S**ensor

**ITS** the new inline temperature sensor from AVS-Römer



Inline temperature sensor for measuring temperature of liquid and gaseous media.

The ceramic temperature sensor combined with the proven ELSA push-in connector made from PPSU is mainly used in the food industries.

#### Other features:

- fast response time
- minimal dead space
- materials and constructional design especially optimised for food applications

#### Variations / options:

- other hose connections
- other materials for seal

## CHARACTERISTICS

### GENERAL

Constructional design	Ceramic temperature measuring cell
Product name	Temperature sensor
Product type	ITS-958P3-...
Nominal diameter	2.5 DN or DN 4
Connection	ELSA push-in connectors for pipe/tube OD 4 or OD 6
Ambient temperature	0°C to +60°C
Medium temperature	0°C to +135°C
Medium viscosity	up to approx. 35 mm <sup>2</sup> /s
Thermal time constant	< 2 s (water)
Body material	PPSU (KTW-approved, NSF-certified)
Sensor housing material	Al <sub>2</sub> O <sub>3</sub>
O-ring material	FKM (FDA-compliant) or EPDM (NSF-, KTW-approved)
Approval	NSF/ANSI 169

### PNEUMATIC - HYDRAULIC

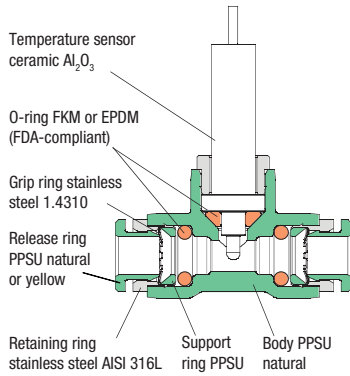
Nominal pressure	PN 20
Pressure range	Technical vacuum up to maximum allowable operating pressure OP in accordance with the specification table
Flow rate	Kv-value in accordance with the specification table
Medium	Gases or liquids which do not corrode the materials specified

### ELECTRIC

Electrical Connection	2-pin PVC ribbon cable AWG 24, 0.75 m, UL AWM style 2651, 300 V, 105°C, strand ends pre-tinned
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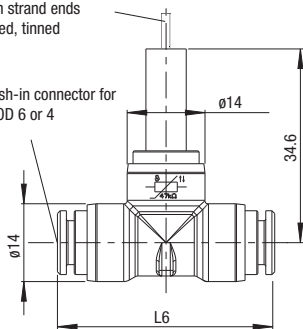
**Caution!** PPSU should not be used in contact with aromatic hydrocarbons, oxidising acids, acetone, chlorinated hydrocarbons, ethers or ketones! Also, PPSU should not be placed directly in contact with anaerobic adhesives!

**Illustration**



Cable length approx. 0.75m strand ends stripped, tinned

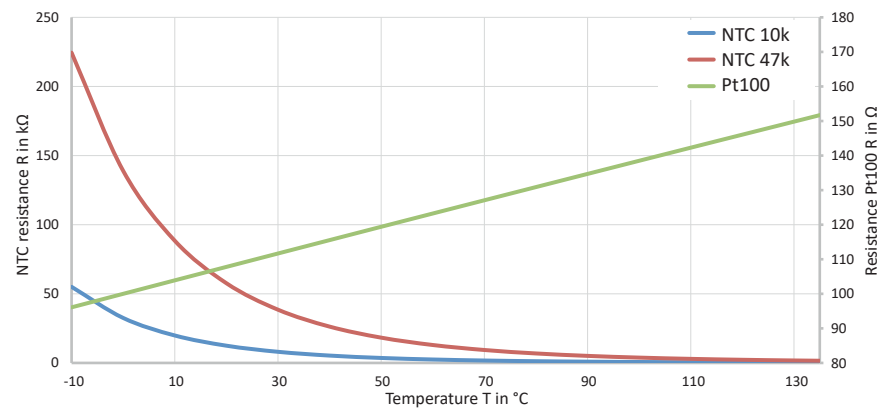
2x push-in connector for tube OD 6 or 4



**Temperature Sensor, Type ITS**

Product group	PN	Amb. temp.	T <sub>min</sub> 0°C, T <sub>max</sub> +60°C	Operating pressure: 0 to max. 20 bar	NSF	Plastic PPSU						
	20	Med. temp.	T <sub>min</sub> 0°C, T <sub>max</sub> +135°C	Temperature-dependent								
for tube OD	DN	Kv-value water [l/min]	L6	Sensor-type	Nominal resistance NTC at 25°C Pt100 at 0°C	R Tolerance	B value R25/85	B Tolerance	Sealant material	Type	Order number	Price
4	2.5	2.4	38	NTC	10 kOhm	± 1%	3977 K	± 1%	FKM (FDA-compliant)	ITS-958P3-4FF-NTC10	390517	o. r.
4	2.5	2.4	38	NTC	10 kOhm	± 1%	3977 K	± 1%	EPDM (FDA-compliant)	ITS-958P3-4PF-NTC10	390521	o. r.
6	4.0	8.1	39	NTC	10 kOhm	± 1%	3977 K	± 1%	FKM (FDA-compliant)	ITS-958P3-6FF-NTC10	390518	o. r.
6	4.0	8.1	39	NTC	10 kOhm	± 1%	3977 K	± 1%	EPDM (FDA-compliant)	ITS-958P3-6PF-NTC10	390522	o. r.
4	2.5	2.4	38	NTC	47 kOhm	± 1%	3690 K	± 1%	FKM (FDA-compliant)	ITS-958P3-4FF-NTC47	390508	o. r.
4	2.5	2.4	38	NTC	47 kOhm	± 1%	3690 K	± 1%	EPDM (FDA-compliant)	ITS-958P3-4PF-NTC47	390509	o. r.
6	4.0	8.1	39	NTC	47 kOhm	± 1%	3690 K	± 1%	FKM (FDA-compliant)	ITS-958P3-6FF-NTC47	390510	o. r.
6	4.0	8.1	39	NTC	47 kOhm	± 1%	3690 K	± 1%	EPDM (FDA-compliant)	ITS-958P3-6PF-NTC47	390511	o. r.
4	2.5	2.4	38	Pt100	100 Ohm	Kl. B	-	-	FKM (FDA-compliant)	ITS-958P3-4FF-PT100	390519	o. r.
4	2.5	2.4	38	Pt100	100 Ohm	Kl. B	-	-	EPDM (FDA-compliant)	ITS-958P3-4PF-PT100	390523	o. r.
6	4.0	8.1	39	Pt100	100 Ohm	Kl. B	-	-	FKM (FDA-compliant)	ITS-958P3-6FF-PT100	390520	o. r.
6	4.0	8.1	39	Pt100	100 Ohm	Kl. B	-	-	EPDM (FDA-compliant)	ITS-958P3-6PF-PT100	390524	o. r.

**Characteristic Curve -10 to +135°C 0-250 kΩ**





## AVS ELSA Push-in Function Fittings PPSU / Stainless Steel AISI 316L (1.4404)



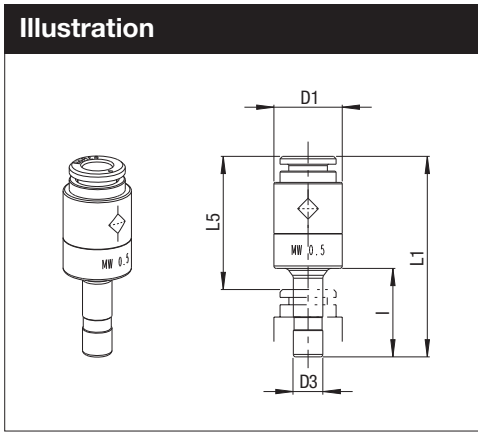
**AVS function fittings**, i.e., filters, non-return valves, throttles, quick-release couplings... in combination with the established **ELSA push-in connectors** by AVS-Römer.

**Application**

AVS function fittings are used in a variety of neutral gaseous and liquid media. If the fitting materials are suitable, application with aggressive media is permitted. See also the information on characteristics.

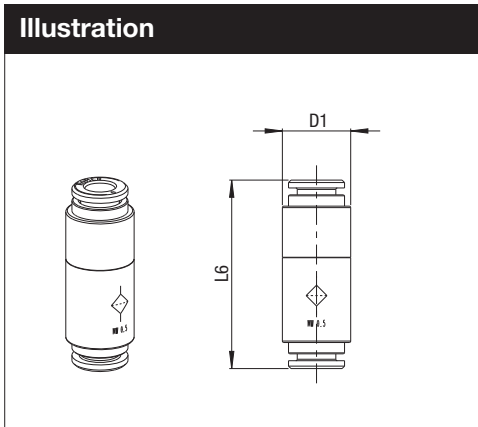
**CHARACTERISTICS**
**BODY MATERIAL / SUITABILITY**

Stainless steel AISI 316L	<b>Corresponds to 1.4404 stainless steel.</b> Suitable for many aggressive media, in particular at higher pressures.	
Plastic PPSU	<b>Polyphenylsulfone.</b> Suitable for many aggressive media with temperatures up to 140°C (hot water, steam). Can be used with FDA-compliant FKM sealing rings or FDA-compliant and KTW-approved EPDM sealing rings in the food and pharmaceutical industries. <b>Caution!</b> PPSU should not be used in contact with aromatic hydrocarbons, oxidising acids, acetone, chlorinated hydrocarbons, ethers or ketones! Also, PPSU should not be placed directly in contact with anaerobic adhesives!	
<b>Other materials:</b>	See relevant products	
<b>Approval</b>	NSF/ANSI 169	
<b>PIPE / TUBE</b>		
<b>Outside diameter [mm] OD</b>	4, 6 and 8	
<b>Perm. Tolerance [mm]</b>	± 0.1	
<b>Perm. grades</b>	Polyamide (PA), polyurethane (PU), fluorine polymer (FEP and PFA)	
<b>THREAD</b>		
<b>External thread</b>	"G" cylindrical thread: Whitworth pipe thread DIN ISO 228-1 G 1/8-G 1/4	
<b>OPERATING PRESSURE / TEMPERATURE</b>		
<b>Plastic fittings</b>	Operating pressure 0 to 16 bar Temperature-dependent	Means that the allowable operating pressure OP is also dependent on the medium temperature within the allowable ambient temperature. Values on request.
<b>Allowable operating pressure and operating temperature of pipe / tube must be observed!</b>		
<b>THREAD SEAL</b>		
<b>Cylindrical threaded nipple</b>	Thread sealed by a FKM O-Ring in recess	applies to all cylindrical threaded nipples



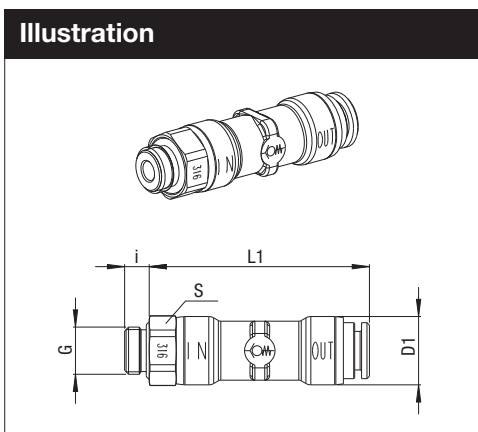
**Filter with Push-in Connector and Stem**

Product group	<b>23</b>	PN	16		Amb. temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$ Med.-Temp. $T_{min} 0^{\circ}C, T_{max} +140^{\circ}C$		Plastic PPSU					
Operating pressure 0 to max. 16 bar Temperature-dependent				Material: Body: PPSU, filter: 1.4301, Seal: EPDM (KTW-approved)								
DN	KV value water [m³/h]	for tube OD	D3	i	L1	L5	D1	Mesh size MW [mm]	Weight in [g]	Type	Order number	Price
2.5	0.15	4	4	17	40.5	25.5	14	0.1	4.7	SMF-947P3-4PF-D 4-100	498143	o. r.
2.5	0.15	4	4	17	40.5	25.5	14	0.5	4.8	SMF-947P3-4PF-D 4-500	498144	o. r.
4	0.5	6	6	18	41	25	14	0.1	4.8	SMF-947P3-6PF-D 6-100	498145	o. r.
4	0.5	6	6	18	41	25	14	0.5	4.9	SMF-947P3-6PF-D 6-500	498146	o. r.



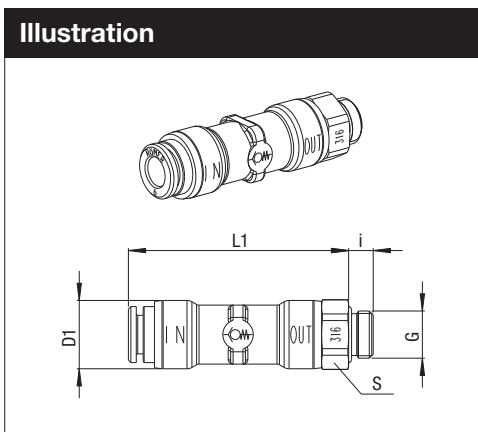
**Filter with Push-in Connectors**

Product group	<b>23</b>	PN	16		Amb. temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$ Med.-Temp. $T_{min} 0^{\circ}C, T_{max} +140^{\circ}C$		Plastic PPSU		
Operating pressure 0 to max. 16 bar Temperature-dependent				Material: Body: PPSU, filter: 1.4301, Seal: EPDM (KTW-approved)					
DN	KV value water [m³/h]	for tube OD	L6	D1	Mesh size MW [mm]	Weight in [g]	Type	Order number	Price
2.5	0.15	4	37.5	14	0.1	7.3	SMF-958P3-4PF-100	498147	o. r.
2.5	0.15	4	37.5	14	0.5	7.4	SMF-958P3-4PF-500	498148	o. r.
4	0.5	6	38.5	14	0.1	7.6	SMF-958P3-6PF-100	498149	o. r.
4	0.5	6	38.5	14	0.5	7.7	SMF-958P3-6PF-500	498150	o. r.



**Non-Return Valve with Push-in Connector on Outlet**

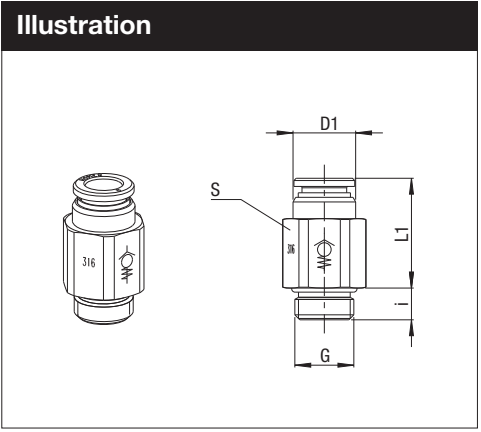
Product group	<b>23</b>	PN	16		Constr. design: spring-loaded cone non-return valve	Amb. temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$ Med. temp. $T_{min} 0^{\circ}C, T_{max} +140^{\circ}C$		Plastic PPSU			
Operating pressure 0.1 to max. 16 bar; Temperature-dependent				Thread sealed by a FKM O-Ring in recess		Material: Body: PPSU, nipple: 1.4404, cone PPSU, spring: Stainless steel 1.4310, seal: FKM (FDA-compliant)					
DN	KV value water [m³/h]	for tube OD	G	i	L1	D1	S	Weight in [g]	Type	Order number	Price
2.5	0.15	4	1/8	5	48	14	13	20.2	VNR-951-P340-4FF-1/8	634901	o. r.
2.5	0.15	4	1/4	7	48.5	14	17	29.5	VNR-951-P340-4FF-1/4	634902	o. r.
4	0.5	6	1/8	5	45	14	13	17	VNR-951-P340-6FF-1/8	634903	o. r.
4	0.5	6	1/4	7	45.5	14	17	26.4	VNR-951-P340-6FF-1/4	634904	o. r.



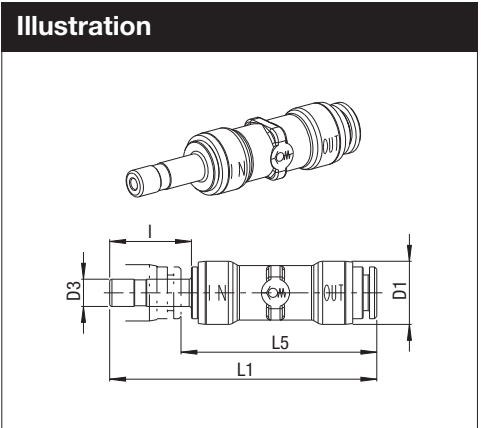
**Non-Return Valve with Push-in Connector on Inlet**

Product group	<b>23</b>	PN	16		Constr. design: spring-loaded cone non-return valve	Amb. temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$ Med. temp. $T_{min} 0^{\circ}C, T_{max} +140^{\circ}C$		Plastic PPSU			
Operating pressure 0.1 to max. 16 bar; Temperature-dependent				Thread sealed by a FKM O-Ring in recess		Material: Body: PPSU, nipple: 1.4404, cone PPSU, spring: Stainless steel 1.4310, seal: FKM (FDA-compliant)					
DN	KV value water [m³/h]	for tube OD	G	i	L1	D1	S	Weight in [g]	Type	Order number	Price
2.5	0.15	4	1/8	5	44.5	14	13	16.8	VRN-951-P340-4FF-1/8	634909	o. r.
2.5	0.15	4	1/4	7	45	14	17	26.2	VRN-951-P340-4FF-1/4	634910	o. r.
4	0.5	6	1/8	5	45	14	13	17	VRN-951-P340-6FF-1/8	634911	o. r.
4	0.5	6	1/4	7	45.5	14	17	26.5	VRN-951-P340-6FF-1/4	634912	o. r.

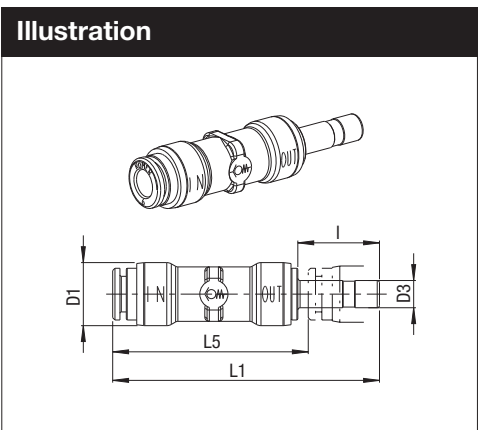
Non-Return Valve with Push-in Connector on Inlet												
Product group	<b>23</b>	PN 8		Constr. design: spring-loaded cone non-return valve	$T_{min}$ 0°C $T_{max}$ +140°C		Stainless steel AISI 316L					
Operating pressure 0.1 to max. 8 bar		Thread sealed by a FKM O-Ring in recess		Material: Body: 1.4404, cone PPSU, spring: Stainless steel 1.4310, seal: FKM (FDA-compliant)								
DN	KV value water [m³/h]	for tube OD	G	i	L1	D1	S	Weight in [g]	Type	Order number	Price	
4	0.5	8	1/4	7	24	14	17	26.8	VRN-951-X 440-8FF-1/4	634943	o. r.	



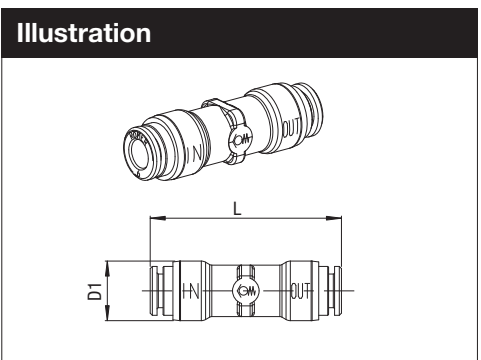
Non-Return Valve with Plug-in Connector, Stem on Inlet											
Product group	<b>23</b>	PN 16		Constr. design: spring-loaded cone non-return valve	Amb. temp. $T_{min}$ 0°C, $T_{max}$ +60°C Med. temp. $T_{min}$ 0°C, $T_{max}$ +140°C		Plastic PPSU				
Operating pressure 0.1 to max. 16 bar Temperature-dependent		Material: Body: PPSU, Stem: 1.4404, cone PPSU, spring: Stainless steel 1.4310, seal: FKM (FDA-compliant)									
DN	KV value water [m³/h]	for tube OD	D3	I	L1	L5	D1	Weight in [g]	Type	Order number	Price
2.5	0.15	4	4	17	60.5	47	14	14.3	VNR-947-P340-4FF-D4	634917	o. r.
2.5	0.15	4	6	18	61.5	46	14	15.4	VNR-947-P340-4FF-D6	634918	o. r.
2.5	0.5	6	4	17	57.5	43.5	14	11.2	VNR-947-P340-6FF-D4	634919	o. r.
4	0.5	6	6	18	58.5	42.5	14	12.3	VNR-947-P340-6FF-D6	634920	o. r.

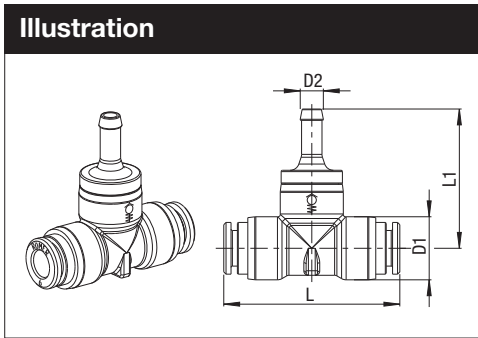


Non-Return Valve with Plug-in Connector, Stem on Outlet											
Product group	<b>23</b>	PN 16		Constr. design: spring-loaded cone non-return valve	Amb. temp. $T_{min}$ 0°C, $T_{max}$ +60°C Med. temp. $T_{min}$ 0°C, $T_{max}$ +140°C		Plastic PPSU				
Operating pressure 0.1 to max. 16 bar Temperature-dependent		Material: Body: PPSU, Stem: 1.4404, cone PPSU, spring: Stainless steel 1.4310, seal: FKM (FDA-compliant)									
DN	KV value water [m³/h]	for tube OD	D3	I	L1	L5	D1	Weight in [g]	Type	Order number	Price
2.5	0.15	4	4	17	57	42	14	11	VRN-947-P340-4FF-D4	634925	o. r.
2.5	0.15	4	6	18	58	42	14	12	VRN-947-P340-4FF-D6	634926	o. r.
2.5	0.5	6	4	17	57.5	42.5	14	11.2	VRN-947-P340-6FF-D4	634927	o. r.
4	0.5	6	6	18	58.5	42.5	14	12.3	VRN-947-P340-6FF-D6	634928	o. r.



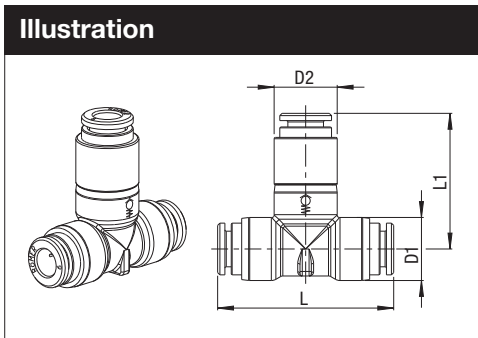
Non-Return Valve with Push-in Connectors											
Product group	<b>23</b>	PN 16		Constr. design: spring-loaded cone non-return valve	Amb. temp. $T_{min}$ 0°C, $T_{max}$ +60°C Med. temp. $T_{min}$ 0°C, $T_{max}$ +140°C		Plastic PPSU				
Operating pressure 0.1 to max. 16 bar Temperature-dependent		Material: Body: PPSU, cone PPSU, spring: Stainless steel 1.4310, seal: FKM (FDA-compliant)									
DN	KV value water [m³/h]	for tube OD	L	D1	Temperature [°C]	Operating pressure Temperature-dependent [bar]	Weight in [g]	Type	Order number	Price	
2.5	0.15	4	47.3	13.9	0 to +140	0.1 to max. 16	11.1	VNR-958-P340-4FF	635077	o. r.	
4	0.5	6	44.6	13.9	0 to +140	0.1 to max. 16	8.1	VNR-958-P340-6FF	635080	o. r.	





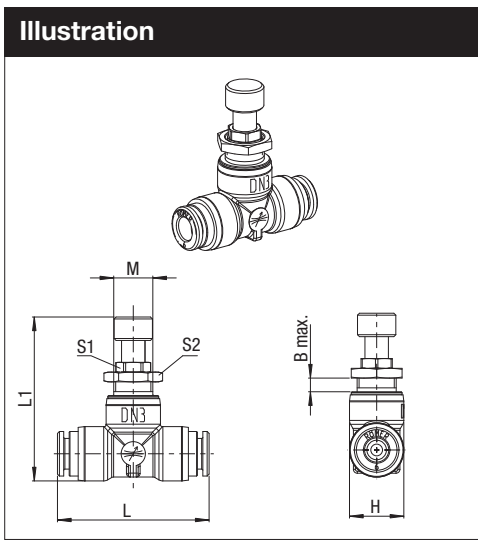
**Non-Return Valve with Push-in Connectors and Hose Tail**

Product group	<b>23</b>	PN 16		Constr. design: spring-loaded cone non-return valve	Amb. temp. $T_{min}$ 0°C, $T_{max}$ +60°C Med. temp. $T_{min}$ 0°C, $T_{max}$ +140°C		Plastic PPSU				
Operating pressure 0.1 to max. 16 bar Temperature-dependent		Material: Body: PPSU, cone PPSU, spring: Stainless steel 1.4310, seal: FKM (FDA-compliant)									
DN	KV value water [m³/h]	for tube OD	for tube LW	L	L1	D1	D2	Weight in [g]	Type	Order number	Price
2.5	0.15	4	3.5-4	38	30.5	14	5.1	14.6	VRN-954-P330-4FF-4	634933	o. r.
2.5	0.15	6	3.5-4	39	30.5	14	5.1	14.7	VRN-954-P330-6FF-4	634934	o. r.



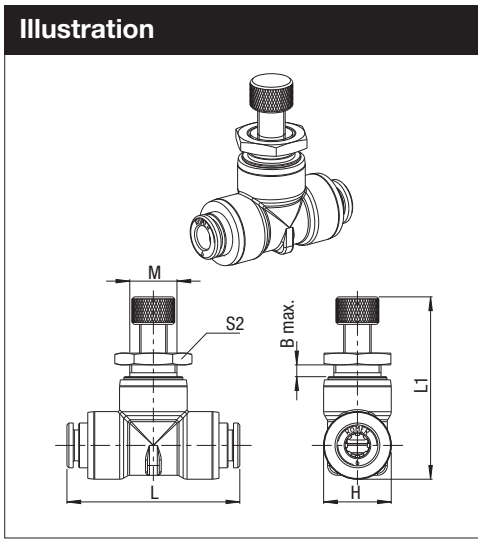
**Non-Return Valve with Push-in Connectors**

Product group	<b>23</b>	PN 16		Constr. design: spring-loaded cone non-return valve	Amb. temp. $T_{min}$ 0°C, $T_{max}$ +60°C Med. temp. $T_{min}$ 0°C, $T_{max}$ +140°C		Plastic PPSU			
Operating pressure 0.1 to max. 16 bar Temperature-dependent		Material: Body: PPSU, cone PPSU, spring: Stainless steel 1.4310, seal: FKM (FDA-compliant)								
DN	KV value water [m³/h]	for tube OD	L	L1	D1	D2	Weight in [g]	Type	Order number	Price
2.5	0.15	4	38	29.5	13	14	20.6	VRN-954-P340-4FF	634937	o. r.
4	0.3	6	39	30	17	14	19.1	VRN-954-P340-6FF	634938	o. r.



**Throttle Valve with Push-in Connectors**



Product group	<b>27</b>	PN 20		Constr. design: Precision cone throttle	Amb. temp. $T_{min}$ 0°C, $T_{max}$ +60°C Med. temp. $T_{min}$ 0°C, $T_{max}$ +140°C		Plastic PPSU						
Operating pressure 0 to max. 20 bar Temperature-dependent		Material: Body: PPSU, spindle 1.4404, seal: FKM (FDA-compliant)											
DN	KV value water [m³/h]	for tube OD	L	L1	M	B	H	S1	S2	Weight in [g]	Type	Order number	Price
1.5	0-0.05	4	38.8	42	M10x1	3.5	13.9	8	13	23	RFO-958-P315-4FF	635635	o. r.
1.5	0-0.05	6	38.8	42	M10x1	3.5	13.9	8	13	23.2	RFO-958-P315-6FF	635636	o. r.
2	0-0.1	4	38.8	42	M10x1	3.5	13.9	8	13	23.1	RFO-958-P320-4FF	635637	o. r.
2	0-0.1	6	38.8	42	M10x1	3.5	13.9	8	13	23.2	RFO-958-P320-6FF	635638	o. r.
3	0-0.2	6	38.8	42	M10x1	3.5	13.9	8	13	23.3	RFO-958-P330-6FF	635639	o. r.

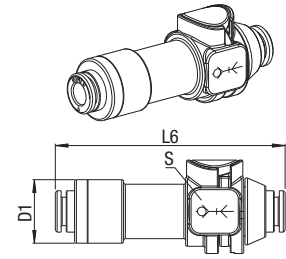




**Shut-Off Valve with Push-in Connectors**

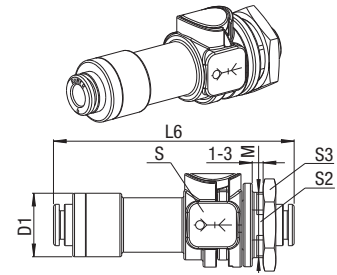
Product group	<b>27</b>	PN 16		Constr. design: Cone poppet valve	Amb. temp. $T_{min}$ 0°C, $T_{max}$ +60°C Med. temp. $T_{min}$ 0°C, $T_{max}$ +140°C		Plastic PPSU					
Operating pressure 0 to max. 16 bar Temperature-dependent		Material: Body: PPSU, spindle 1.4404, Seal: FKM (FDA-compliant)										
DN	KV value water [m³/h]	for tube OD	L	L1	M	B	H	S2	Weight in [g]	Type	Order number	Price
2	0-0.5	6	44	46.5	M12x1	3.5	17	17	35.6	AFO-958-P320-6FF	694949	o. r.

**Quick Coupling with Push-in Connectors, int. NRV**

Product group	<b>23</b>	PN 12		Constr. design: Quick-release coupling with single-sided integrated non-return valve		Plastic PPSU			
Amb. temp. $T_{min}$ 0°C, $T_{max}$ +60°C Med. temp. $T_{min}$ 0°C, $T_{max}$ +140°C	Operating pressure 0.1 to max. 12 bar Temperature-dependent		Material: Body: PPSU, cone PPSU, spring: Stainless steel 1.4310, seal: FKM (FDA-compliant)						
DN	KV value water [m³/h]	for tube OD	L6	D1	S	Weight in [g]	Type	Order number	Price
3	0.16	4	62.5	17.5	20	18.4	SVK-958-P330-4FF	359320	o. r.
4	0.35	6	63.5	17.5	20	18.6	SVK-958-P340-6FF	359321	o. r.

**Illustration**

**Bulkhead Quick Coupling with Push-in Connectors, int. NRV**

Product group	<b>23</b>	PN 12		Constr. design: Schott quick-release coupling with single-sided integrated non-return valve		Plastic PPSU						
Amb. temp. $T_{min}$ 0°C, $T_{max}$ +60°C Med. Temp. $T_{min}$ 0°C, $T_{max}$ +140°C	Operating pressure 0.1 to max. 12 bar Temperature-dependent		Material: Body: PPSU, cone PPSU, spring: Stainless steel 1.4310, seal: FKM (FDA-compliant)									
DN	KV value water [m³/h]	for tube OD	L6	M	D1	S	S2	S3	Weight in [g]	Type	Order number	Price
3	0.16	4	62.5	M18x1	17.5	20	16	22	25.5	SVK-959-P330-4FF	359322	o. r.
4	0.35	6	63.5	M18x1	17.5	20	16	22	26.0	SVK-959-P340-6FF	359323	o. r.

**Illustration**




## AVS ELSA Push-in Fittings, PPSU



ELSA the Established push-in connector from AVS-Römer


**PPSU version**

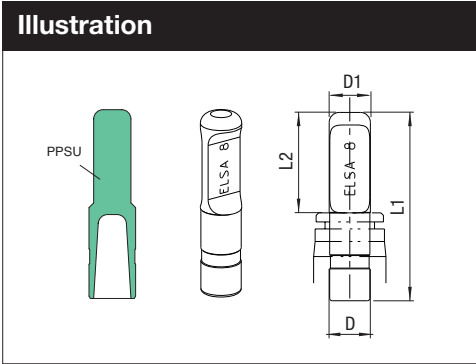
Operating pressure Technical vacuum up to maximum pressure as stated in the respective specification table under OP.  
Temperature range 0°C to +140°C (for restrictions see specification table)

**Application**

ELSA push-in connectors made from PPSU are used mainly in the food industries for liquids with temperatures up to 140°C. (hot water, coffee, steam,...). These push-in connectors are equipped with FDA-compliant FKM sealing rings as standard, on request they are available with FDA-compliant and KTW-approved EPDM sealing rings. These high-tech plastic fittings are a low-cost alternative to stainless steel fittings in many areas of application.

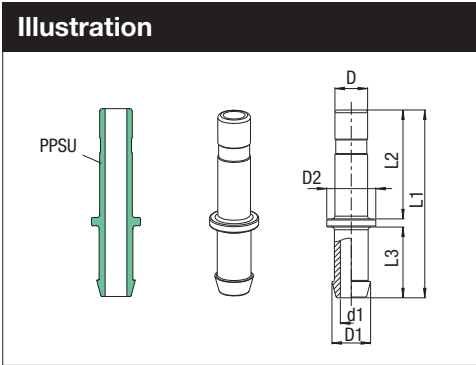
**CHARACTERISTICS**
**BODY MATERIAL / SUITABILITY**

<b>Plastic PPSU</b>	<b>Polyphenylsulfone.</b> Suitable for many aggressive media with temperatures up to 140°C (hot water, steam). The FKM sealing ring is FDA-compliant and can be used in the food and pharmaceutical industries. <b>Caution!</b> PPSU should not be used in contact with aromatic hydrocarbons, oxidising acids, acetone, chlorinated hydrocarbons, ethers or ketones! Also, PPSU should not be placed directly in contact with anaerobic adhesives!	
<b>Other materials:</b>	See relevant products	
<b>Approval</b>	NSF/ANSI 169	
<b>PIPE / TUBE</b>		
<b>Outside Ø OD [mm]</b>	4, 6 and 8	
<b>Perm. Tolerance [mm]</b>	± 0.1	
<b>Perm. grades</b>	Polyamide (PA), polyurethane (PU), fluorine polymer (FEP and PFA)	
<b>THREAD</b>		
<b>External thread</b>	"M" cylindrical thread: Metric ISO thread M5	
<b>External thread</b>	"G" cylindrical thread: Whitworth pipe thread DIN ISO 228-1 G 1/8 up to G 3/8	
<b>Internal thread</b>	"G" cylindrical thread: Whitworth pipe thread DIN ISO 228-1 G 1/8 up to G 1/4	
<b>OPERATING PRESSURE / TEMPERATURE</b>		
<b>Plastic fittings</b>	Max. operating pressure OP at the stated ambient temp. and medium temp. according to table	Means that the allowable operating pressure OP within the allowable ambient temperature also depends on the medium temperature in accordance with the specification table.
<b>Allowable operating pressure and operating temperature of pipe / tube must be observed!</b>		
<b>THREAD SEAL</b>		
<b>Cylindrical threaded nipple</b>	Thread sealed by a FKM O-Ring in recess	applies to all cylindrical threaded nipples
<b>"ROTATABLE" VERSION</b>		
<b>90° elbow-, T- and Y-adaptors - male</b>	not suitable for rotating or oscill. movements	Some types of fittings rotate 360° in order to facilitate alignment during assembly or for compensating movement.
<b>SPECIAL VERSIONS (NOT INCLUDED IN THE CATALOGUE)</b>		
We also produce ELSA push-in connectors in various special versions not included in the catalogue, as well as customer-specific versions.		
<ul style="list-style-type: none"> <li>• other O-ring materials such as EPDM, FDA-compliant</li> <li>• for pipes / tubes with inch dimensions</li> <li>• "R" conical threaded fitting</li> </ul>		



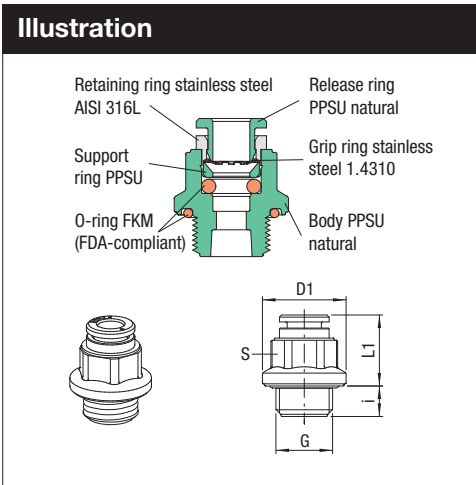
### Push-in Plug

Product group	<b>15</b>	Max. allow. OP at ambient temp. $T_{min} -20^{\circ}C, T_{max} +60^{\circ}C$			NSF		Plastic PPSU			
for plug-in connector D	Max. allow. OP [bar] at medium temp.			L1	L2	D1	Weight in [g]	Type	Order number	Price
	20°C	100°C	140°C							
4	20	16	10	31.5	17	6	0.7	971P3-4	237495	€0.74
6	20	16	10	34.5	19	8	1.2	971P3-6	237496	€0.84
8	16	12	10	37.5	20	8	1.7	971P3-8	237497	o. r.



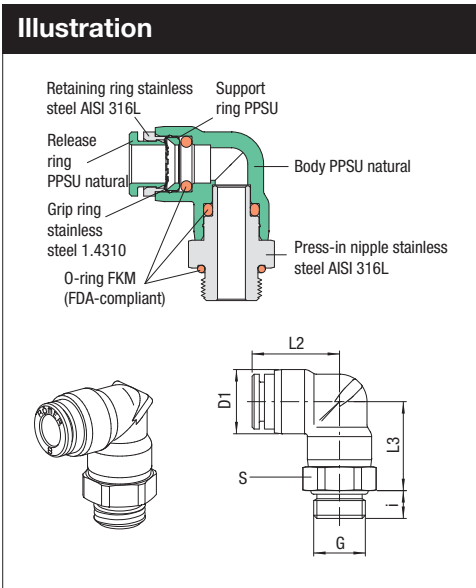
### Straight Stem Connector with Hose Tail

Product group	<b>15</b>	Max. allow. OP at ambient temp. $T_{min} -20^{\circ}C, T_{max} +60^{\circ}C$			NSF		Plastic PPSU							
for plug-in connection D	for tube LW	Max. allow. OP [bar] at medium temp.			d1	L1	L2	L3	D1	D2	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C										
4	2.7-3	20	16	10	1.8	27	17	8.5	3.6	5.5	0.1	907P3-D4-3	281181	o. r.
4	3.5-4	20	16	10	2.5	28.5	17	10	5.1	6	0.1	907P3-D4-4	281182	o. r.
6	2.7-3	20	16	10	1.8	28.5	20	8.5	3.6	6	0.1	907P3-D6-3	281183	o. r.
6	3.5-4	20	16	10	2.8	30	20	10	5.1	6	0.1	907P3-D6-4	281184	€0.84
6	5-6	20	16	10	4	34.5	20	13	7.1	9	0.1	907P3-D6-7	281185	€1.12



### Straight Adapter - Male

Product group	<b>15</b>	Max. allow. OP at ambient temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$			Thread cylindrical	Thread sealed by a FKM O-Ring in recess	Tightening torque 3-3.5 Nm	NSF		Plastic PPSU		
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L1	D1	S	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C								
4	G 1/8	20	16	10	6	17	16	14	4.3	951P3-4FF-1/8	367051	€4.07
4	G 1/4	20	16	10	7	16	19	14	5.1	951P3-4FF-1/4	367052	€4.31
6	G 1/8	20	16	10	6	17.5	16	14	4.6	951P3-6FF-1/8	367053	€4.12
6	G 1/4	20	16	10	7	16.5	19	14	5.4	951P3-6FF-1/4	367054	€4.28



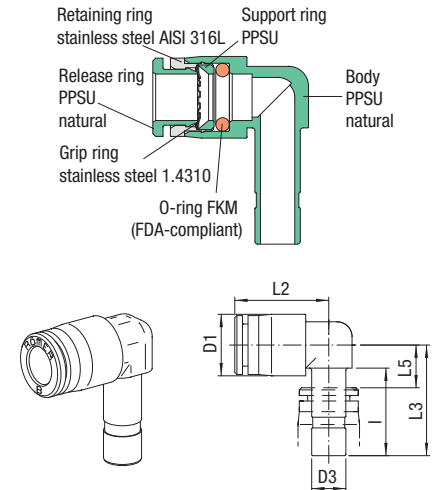
### 90° Elbow Adapter - Male - Positionable

Product group	<b>15</b>	Max. allow. OP at ambient temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$			Thread cylindrical	Thread sealed by a FKM O-Ring in recess	not suitable for rotating or oscill. movement		NSF		Plastic PPSU		
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L2	L3	D1	S	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C									
4	M 5	20	16	10	3.5	15	11	10	8	3.7	930P3-4FF-M5	367057	€10.15
4	G 1/8	20	16	10	5	19	19.5	12	13	14.4	930P3-4FF-1/8	367058	€9.91
4	G 1/4	20	16	10	7	19	20	12	17	24	930P3-4FF-1/4	367059	€10.87
6	M 5	20	16	10	3.5	17	11	12	8	4.3	930P3-6FF-M5	367060	€10.12
6	G 1/8	20	16	10	5	19.5	19.5	14	13	15.6	930P3-6FF-1/8	367061	€9.80
6	G 1/4	20	16	10	7	19.5	20	14	17	24.2	930P3-6FF-1/4	367062	€10.76
8	G 1/8	16	12	6	5	22.5	22.5	17	17	25	930P3-8FF-1/8	366805	€14.15
8	G 1/4	16	12	6	7	22.5	22.5	17	17	40.0	930P3-8FF-1/4	366806	€14.07
8	G 3/8	16	12	6	8	22.5	22.5	17	19	38.4	930P3-8FF-3/8	366807	€14.87

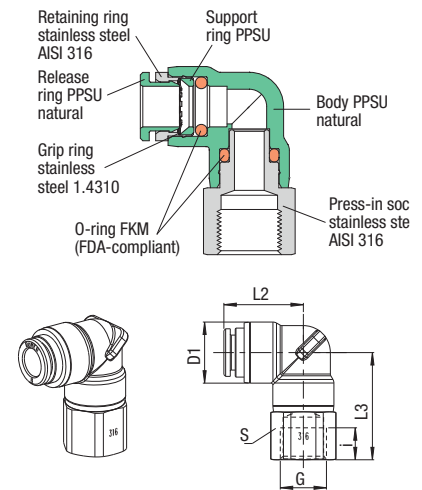


**90° Elbow Connector with Stem**

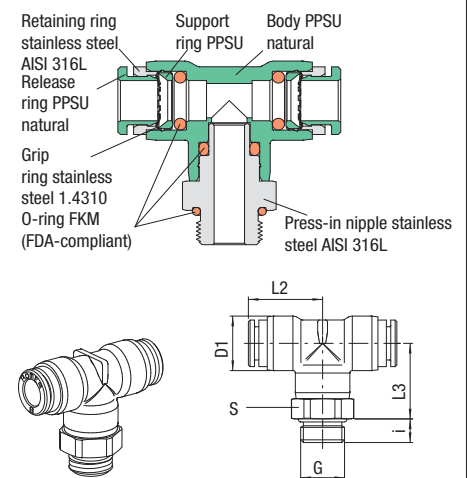
Product group <b>15</b>		Max. allow. OP at ambient temp. T <sub>min</sub> 0°C, T <sub>max</sub> +60°C			NSF		Plastic PPSU						
for tube OD	Stem D3	Max. allow. OP [bar] at medium temp.			I	L2	L3	D1	L5	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C									
4	4	20	16	10	17.5	19	22	12.5	9	o. r.	911P3-4FF-D4	367001	€5.24
4	6	20	16	10	18.5	19	23	12.5	9	o. r.	911P3-4FF-D6	367002	€5.14
6	4	20	16	10	17.5	19.5	22	14	9	o. r.	911P3-6FF-D4	367003	€5.21
6	6	20	16	10	18.5	19.5	23	14	9	o. r.	911P3-6FF-D6	367004	€5.05

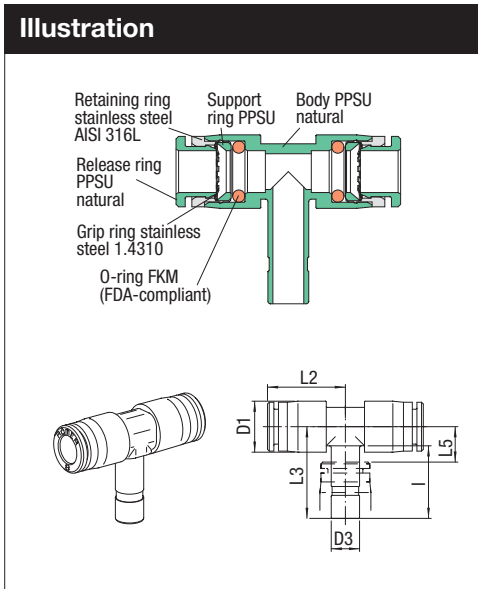
**Illustration**

**90° Elbow Adapter - Female - Positionable**

Product group <b>15</b>		Max. allow. OP at ambient temp. T <sub>min</sub> 0°C, T <sub>max</sub> +60°C			Thread cylindrical		not suitable for rotating or oscill. movement		NSF		Plastic PPSU			
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L2	L3	D1	S	Weight in [g]	Type	Order number	Price	
		20°C	100°C	140°C										
4	G 1/8	20	16	10	6.5	19	24.5	12	13	15.9	979P3-4FF-1/8	366762	o. r.	
4	G 1/4	20	16	10	9	19	27.5	12	17	24.3	979P3-4FF-1/4	366763	o. r.	
6	G 1/8	20	16	10	6.5	19.5	24.5	14	13	16.4	979P3-6FF-1/8	366764	o. r.	
6	G 1/4	20	16	10	9	19.5	27.5	14	17	24.8	979P3-6FF-1/4	366765	o. r.	
8	G 1/8	16	12	6	6.5	22.5	25.5	17	17	26.4	979P3-8FF-1/8	366766	o. r.	
8	G 1/4	16	12	6	9	22.5	30.5	17	17	30.3	979P3-8FF-1/4	366767	o. r.	

**Illustration**

**T-Adapter - Male - Positionable**

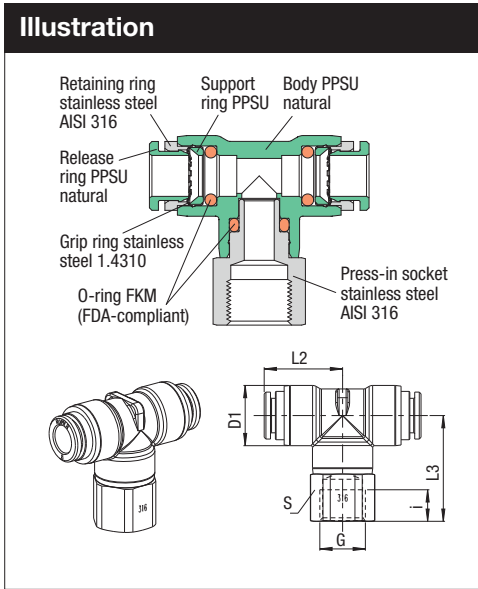
Product group <b>15</b>		Max. allow. OP at ambient temp. T <sub>min</sub> 0°C, T <sub>max</sub> +60°C			Thread cylindrical		Thread sealed by a FKM O-Ring in recess		not suitable for rotating or oscill. movement		NSF		Plastic PPSU	
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L2	L3	D1	S	Weight in [g]	Type	Order number	Price	
		20°C	100°C	140°C										
4	G 1/8	20	16	10	5	19	19.5	14	13	18.7	921P3-4FF-1/8	367065	€12.70	
4	G 1/4	20	16	10	7	19	20	14	17	27.3	921P3-4FF-1/4	367066	€14.14	
6	G 1/8	20	16	10	5	19.5	19.5	14	13	18.9	921P3-6FF-1/8	367067	€13.21	
6	G 1/4	20	16	10	7	19.5	20	14	17	27.6	921P3-6FF-1/4	367068	€14.17	
8	G 1/8	16	12	6	5	22.5	22.5	17	17	28.8	921P3-8FF-1/8	366810	€17.02	
8	G 1/4	16	12	6	7	22.5	22.5	17	17	33.3	921P3-8FF-1/4	366811	€16.94	
8	G 3/8	16	12	6	8	22.5	22.5	17	19	42.2	921P3-8FF-3/8	366812	€17.82	

**Illustration**




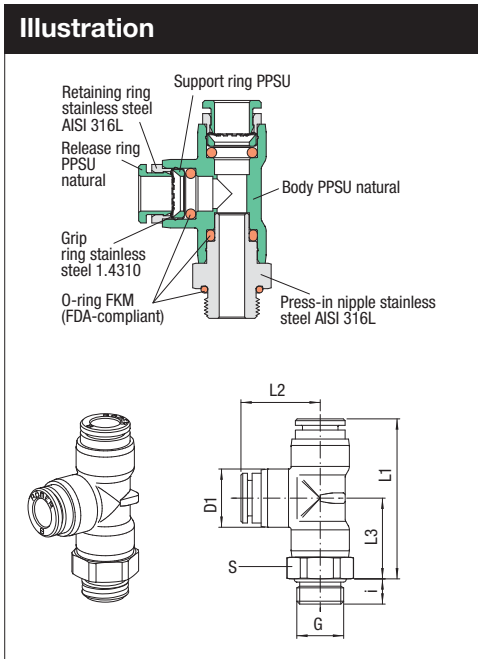
### T-Stub Connector

Product group		<b>15</b>			Max. allow. OP at ambient temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$		NSF		Plastic PPSU				
for tube OD	Stem D3	Max. allow. OP [bar] at medium temp.			i	L2	L3	D1	L5	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C									
4	4	20	16	10	17.5	19	22	12.5	9	o. r.	912P3-4FF-D4	367007	€6.91
4	6	20	16	10	18.5	19	23	12.5	9	o. r.	912P3-4FF-D6	367008	€6.91
6	4	20	16	10	17.5	19.5	22	14	9	o. r.	912P3-6FF-D4	367009	€6.97
6	6	20	16	10	18.5	19.5	23	14	9	o. r.	912P3-6FF-D6	367010	€6.97



### T-Adapter - Female - Positionable

Product group		<b>15</b>			Max. allow. OP at ambient temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$		Thread cylindrical		not suitable for rotating or oscill. movement		NSF		Plastic PPSU	
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L2	L3	D1	S	Weight in [g]	Type	Order number	Price	
		20°C	100°C	140°C										
4	G 1/8	20	16	10	6.5	19	24.5	12	13	18.7	970P3-4FF-1/8	366770	o. r.	
4	G 1/4	20	16	10	9	19	27.5	12	17	27.1	970P3-4FF-1/4	366771	o. r.	
6	G 1/8	20	16	10	6.5	19.5	24.5	14	13	19	970P3-6FF-1/8	366772	o. r.	
6	G 1/4	20	16	10	9	19.5	27.5	14	17	27.4	970P3-6FF-1/4	366773	o. r.	
8	G 1/8	16	12	6	6.5	22.5	25.5	17	17	30.4	970P3-8FF-1/8	366774	o. r.	
8	G 1/4	16	12	6	9	22.5	30.5	17	17	34.3	970P3-8FF-1/4	366775	o. r.	



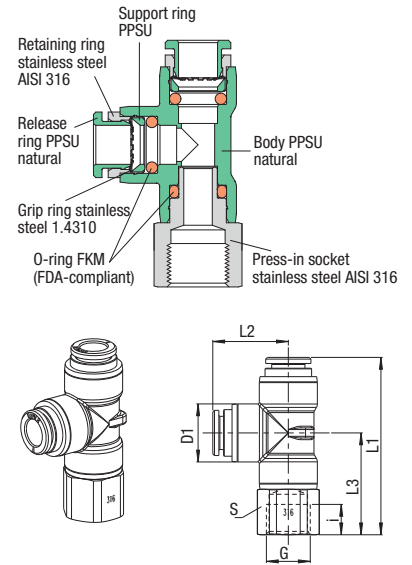
### Side T-Adapter, Male - Positionable

Product group		<b>15</b>			Max. allow. OP at ambient temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$		Thread cylindrical		Thread sealed by a FKM O-Ring in recess		not suitable for rotating or oscill. movement		NSF		Plastic PPSU	
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L1	L2	L3	D1	S	Weight in [g]	Type	Order number	Price		
		20°C	100°C	140°C												
4	G 1/8	20	16	10	5	38.5	19	19.5	14	13	18.7	922P3-4FF-1/8	367071	€12.70		
4	G 1/4	20	16	10	7	39	19	20	14	17	27.3	922P3-4FF-1/4	367072	€14.14		
6	G 1/8	20	16	10	5	39	19.5	19.5	14	13	18.9	922P3-6FF-1/8	367073	€13.21		
6	G 1/4	20	16	10	7	39.5	19.5	20	14	17	27.6	922P3-6FF-1/4	367074	€14.17		
8	G 1/8	16	12	6	5	44	22.5	22.5	17	17	28.8	922P3-8FF-1/8	366815	€17.02		
8	G 1/4	16	12	6	7	45	22.5	22.5	17	17	33.3	922P3-8FF-1/4	366816	€16.94		
8	G 3/8	16	12	6	8	45	22.5	22.5	17	19	42.2	922P3-8FF-3/8	366817	€17.82		

**Side T-Adapter - Female - Positionable**

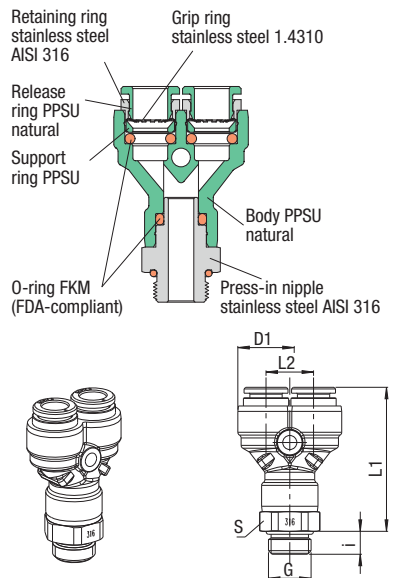
Product group	<b>15</b>	Max. allow. OP at ambient temp. $T_{min}$ 0°C, $T_{max}$ +60°C	Thread cylindrical	Thread sealed by a FKM O-Ring in recess	not suitable for rotating or oscill. movement		<b>Plastic PPSU</b>
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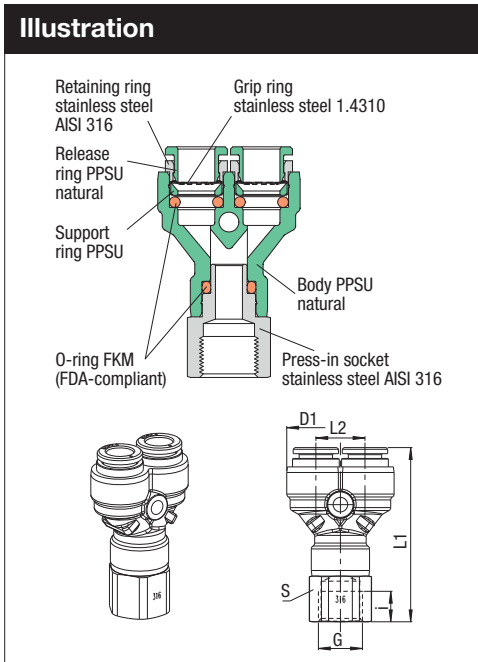
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L1	L2	L3	D1	S	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C										
4	G 1/8	20	16	10	6.5	43.5	19	24.5	12	13	18.7	923P3-4FF-1/8	366778	o. r.
4	G 1/4	20	16	10	9	46.5	19	27.5	12	17	27.1	923P3-4FF-1/4	366779	o. r.
6	G 1/8	20	16	10	6.5	44	19.5	24.5	14	13	19	923P3-6FF-1/8	366780	o. r.
6	G 1/4	20	16	10	9	47	19.5	27.5	14	17	27.4	923P3-6FF-1/4	366781	o. r.
8	G 1/8	16	12	6	6.5	48	22.5	25.5	17	17	30.4	923P3-8FF-1/8	366782	o. r.
8	G 1/4	16	12	6	9	53	22.5	30.5	17	17	34.3	923P3-8FF-1/4	366783	o. r.

**Illustration**

**Y-Adapter - Male - Positionable**

Product group	<b>15</b>	Max. allow. OP at ambient temp. $T_{min}$ 0°C, $T_{max}$ +60°C	Thread cylindrical	Thread sealed by a FKM O-Ring in recess	not suitable for rotating or oscill. movement		<b>Plastic PPSU</b>
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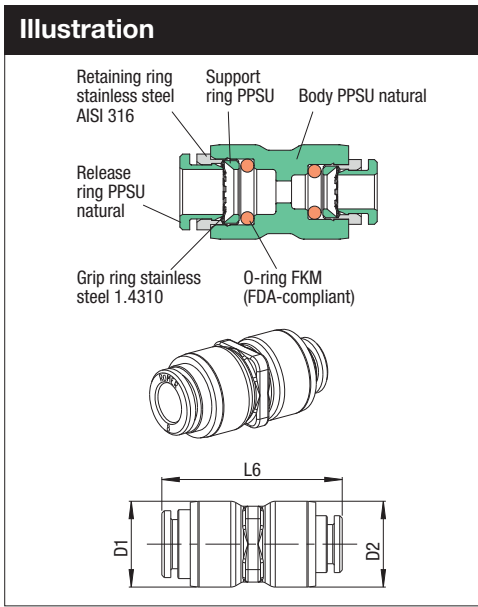
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L1	L2	D1	S	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C									
4	G 1/8	20	16	10	5	38.5	12.5	12.5	13	19.7	992P3-4FF-1/8	367077	€12.70
4	G 1/4	20	16	10	7	39	12.5	14	17	20.2	992P3-4FF-1/4	367078	€14.14
6	G 1/8	20	16	10	5	39	12.5	14	13	20.2	992P3-6FF-1/8	367079	€13.21
6	G 1/4	20	16	10	7	39.5	12.5	14	17	28.9	992P3-6FF-1/4	367080	€14.17
8	G 1/8	16	12	6	5	43.5	14.5	17	17	29.2	992P3-8FF-1/8	366820	€17.02
8	G 1/4	16	12	6	7	43.5	14.5	17	17	33.7	992P3-8FF-1/4	366821	€16.94
8	G 3/8	16	12	6	8	43.5	14.5	17	19	42.6	992P3-8FF-3/8	366822	€17.82

**Illustration**




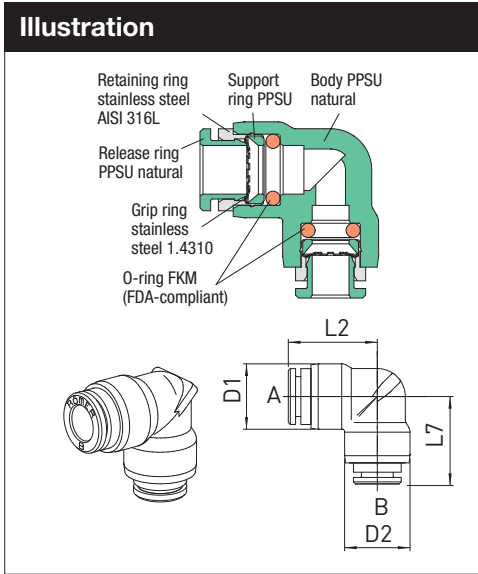
### Y-Adapter - Female - Positionable

Product group	<b>15</b>	Max. allow. OP at ambient temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$			Thread cylindrical	Thread sealed by a FKM O-Ring in recess	not suitable for rotating or oscill. movement			Plastic PPSU			
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L1	L2	D1	S	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C									
4	G 1/8	20	16	10	6.5	43.5	12.5	12.5	13	19.4	993P3-4FF-1/8	366786	o. r.
4	G 1/4	20	16	10	9	46.5	12.5	14	17	27.9	993P3-4FF-1/4	366787	o. r.
6	G 1/8	20	16	10	6.5	44	12.5	14	13	19.7	993P3-6FF-1/8	366788	o. r.
6	G 1/4	20	16	10	9	47	12.5	14	17	28.1	993P3-6FF-1/4	366789	o. r.
8	G 1/8	16	12	6	6.5	46.5	14.5	17	17	31.3	993P3-8FF-1/8	366790	o. r.
8	G 1/4	16	12	6	9	51.5	14.5	17	17	33.7	993P3-8FF-1/4	366791	o. r.



### Straight Connector

Product group	<b>15</b>	Max. allow. OP at ambient temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$				Plastic PPSU					
for tube OD	for tube BD	Max. allow. OP [bar] at medium temp.			L6	D1	D2	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C							
4	4	20	16	10	32	12.5	12.5	6	958P3-4FF	367083	€6.70
6	4	20	16	10	32.5	14	14	6.7	958P3-6-4FF	367084	€6.81
6	6	20	16	10	33	14	14	7	958P3-6FF	367085	€6.73
8	6	16	12	6	36	17	17	10.4	958P3-8-6FF	367086	€9.26
8	8	16	12	6	36.5	17	17	11.1	958P3-8FF	367087	€9.02



### 90° Elbow Connector

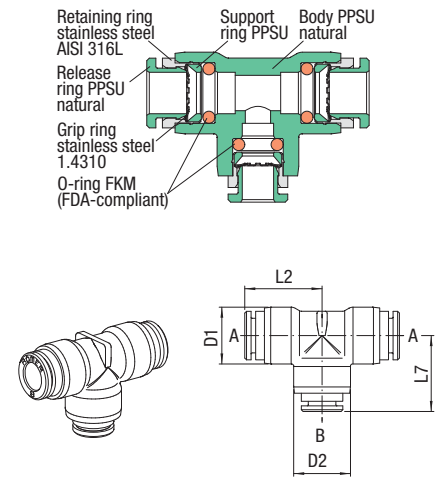
Product group	<b>15</b>	Max. allow. OP at ambient temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$				Plastic PPSU						
for tube OD	for tube BD	Max. allow. OP [bar] at medium temp.			L2	L7	D1	D2	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C								
4	4	20	16	10	17.5	17.5	12	12	6.5	955P3-4FF	367088	€7.02
6	4	20	16	10	19.5	19	14	14	7.2	955P3-6-4FF	367089	€7.13
6	6	20	16	10	19.5	19.5	14	14	7.5	955P3-6FF	367090	€6.97
8	6	16	12	6	22.5	22	17	17	12.5	955P3-8-6FF	367091	€9.50
8	8	16	12	6	22.5	22.5	17	17	13	955P3-8FF	367092	€9.18

**T-Connector**

 Product group **15** Max. allow. OP at ambient temp.  
 $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$ 

**Plastic PPSU**

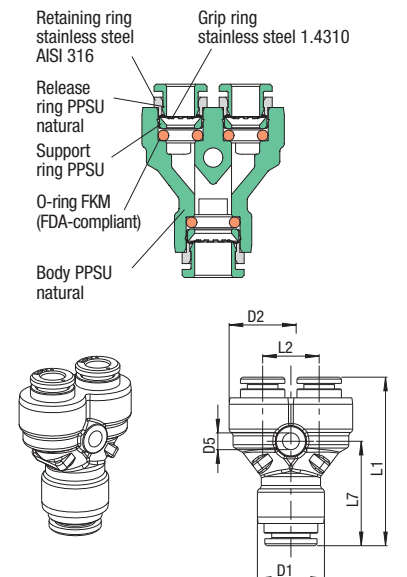
for tube OD	for tube BD	Max. allow. OP [bar] at medium temp.			L2	L7	D1	D2	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C								
4	4	20	16	10	17.5	17.5	12	12	9.4	954P3-4FF	367093	€9.48
6	4	20	16	10	19.5	19	14	14	10.6	954P3-6-4FF	367094	€9.73
6	6	20	16	10	19.5	19.5	14	14	11	954P3-6FF	367095	€9.65
8	6	16	12	6	22.5	22	17	17	17.8	954P3-8-6FF	367096	€12.62
8	8	16	12	6	22.5	22.5	17	17	18.3	954P3-8FF	367097	€12.46

**Illustration**

**Y-Connector**

 Product group **15** Max. allow. OP at ambient temp.  
 $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$ 

**Plastic PPSU**

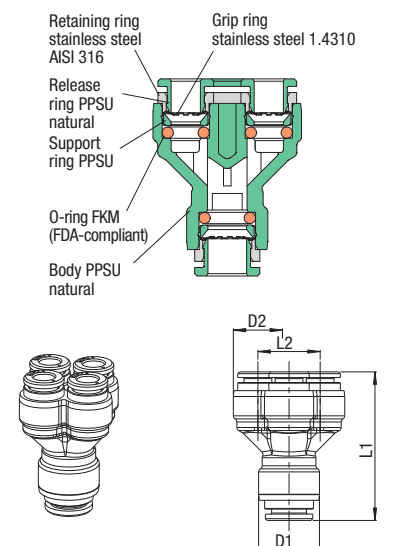
for tube OD	for tube BD	Max. allow. OP [bar] at medium temp.			L1	L2	L7	D1	D2	D5	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C										
4	4	20	16	10	38	12.5	23	12.5	12.5	3.3	10.3	982P3-4FF	367098	€9.24
6	4	20	16	10	38.5	12.5	23.5	14	14	3.3	11.4	982P3-6-4FF	367099	€9.57
6	6	20	16	10	39	12.5	23.5	14	14	3.3	12	982P3-6FF	367100	€9.41
8	6	16	12	6	43.5	14.5	27	17	17	4.3	16	982P3-8-6FF	366801	€13.02
8	8	16	12	6	43.5	14.5	27	17	17	4.3	18	982P3-8FF	366802	€12.70

**Illustration**

**Double Y-Connector**

 Product group **15** Max. allow. OP at ambient temp.  
 $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$ 

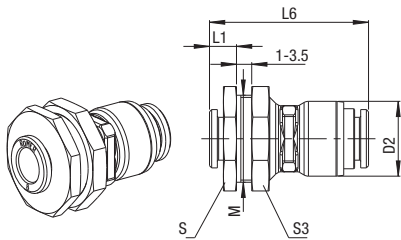
**Plastic PPSU**

for tube OD	for tube BD	Max. allow. OP [bar] at medium temp.			L1	L2	D1	D2	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C								
6	6	20	16	10	41.5	17.5	17	14	12	984P3-6FF	366803	€29.70
8	6	16	12	6	42	17.5	17	14	12	984P3-8-6FF	366804	o. r.

**Illustration**


**Illustration**

Retaining ring stainless steel AISI 316  
 Support ring PPSU  
 Body PPSU natural  
 Release ring PPSU natural  
 Grip ring stainless steel 1.4310  
 O-ring FKM (FDA-compliant)  
 Flare sleeve, brass  
 lock nut, nickel-plated



**Straight Bulkhead Connector**

Product group **15** Max. allow. OP at ambient temp.  
 $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$

**NSF** Plastic PPSU

for tube OD	for tube BD	Max. allow. OP [bar] at medium temp.			M	L1	L6	D1	D2	S	S2	S3	Weight in [g]	Type	Order number	Price
		20°C	100°C	140°C												
4	4	16	10	3	M14x1	10.5	31.5	9.5	9.5	17	12.5	17	19.1	959P3-4FF	366794	o. r.
6	6	16	10	3	M14x1	11	32.5	11.5	11.5	17	12.5	17	18.4	959P3-6FF	366795	o. r.
8	8	16	8	3	M16x1	12.5	36	14	11.5	19	14.5	19	28.6	959P3-8FF	366796	o. r.

**AVS ELSA Push-in Fittings, PVDF**


**ELSA** the Established push-in connector from AVS-Römer


**PVDF version**

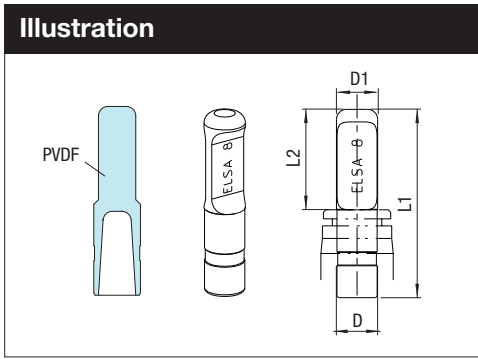
Operating pressure Technical vacuum up to maximum pressure as stated in the respective specification table under OP. Temperature range 0°C to +120°C (for restrictions see specification table)

**Application**

ELSA push-in fittings made of PVDF, due to their very high chemical resistance even at high temperatures, are mainly used in the chemical industries. These push-in fittings are equipped with FDA-compliant FKM sealing rings as standard, on request they are available with FDA-compliant and KTW-approved EPDM sealing rings.

**CHARACTERISTICS**
**BODY MATERIAL / SUITABILITY**

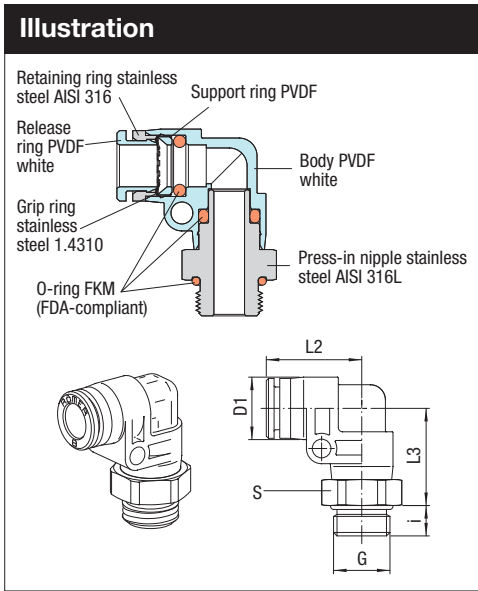
<b>Plastic PVDF</b>	<b>Polyvinylidene fluoride.</b> Suitable for many aggressive media. The FKM sealing ring is FDA-compliant and can be used in the food and pharmaceutical industries.	
<b>Other materials:</b>	See relevant products	
<b>Approval</b>	NSF/ANSI 169	
<b>PIPE / TUBE</b>		
<b>Outside Ø OD [mm]</b>	4, 6 and 8	10, 12
<b>Perm. Tolerance [mm]</b>	± 0.1	± 0.15
<b>Perm. grades</b>	Polyamide (PA), polyurethane (PU), fluorine polymer (FEP and PFA)	
<b>THREAD</b>		
<b>External thread</b>	"M" cylindrical thread: Metric ISO thread M5	
<b>External thread</b>	"G" cylindrical thread: Whitworth pipe thread DIN ISO 228-1 G 1/8 up to G 3/8	
<b>Internal thread</b>	"G" cylindrical thread: Whitworth pipe thread DIN ISO 228-1 G 1/8 up to G 1/4	
<b>OPERATING PRESSURE / TEMPERATURE</b>		
<b>Plastic fittings</b>	Max. Operating pressure OP at the stated ambient temp. and medium temp. according to table	Means that the allowable operating pressure OP within the allowable ambient temperature also depends on the medium temperature in accordance with the specification table.
<b>Allowable operating pressure and operating temperature of pipe / tube must be observed!</b>		
<b>THREAD SEAL</b>		
<b>Cylindrical threaded nipple</b>	Thread sealed by a FKM O-Ring in recess	applies to all cylindrical threaded nipples
<b>"ROTATABLE" VERSION</b>		
<b>90° elbow-, T- and Y-adaptor - male fittings</b>	not suitable for rotating or oscill. movements	Some types of fittings rotate 360° in order to facilitate alignment during assembly or for compensating movement.
<b>SPECIAL VERSIONS (NOT INCLUDED IN THE CATALOGUE)</b>		
We also produce ELSA push-in fittings in various special versions not included in the catalogue, as well as customer-specific versions. <ul style="list-style-type: none"> <li>• other O-ring materials such as EPDM, FDA-compliant</li> <li>• for pipes / tubes with inch dimensions</li> <li>• "R" conical threaded fitting</li> </ul>		



**Push-in Plug**

Product group **12** Max. allow. OP at ambient temp.  $T_{min} -20^{\circ}C, T_{max} +60^{\circ}C$  **NSF** **Plastic PVDF**

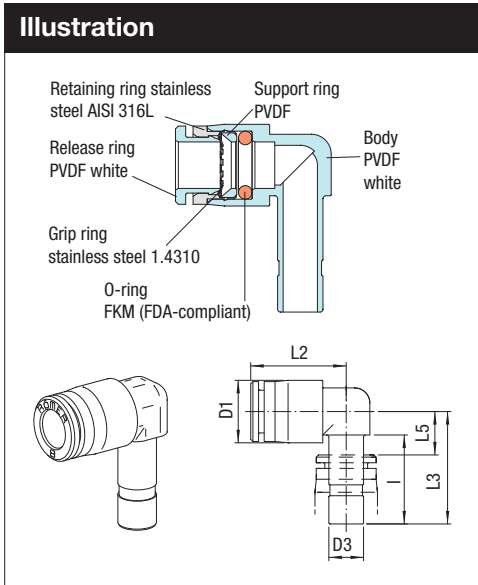
for plug-in connector D	Max. allow. OP [bar] at medium temp.			L1	L2	D1	Weight in [g]	Type	Order number	Price
	20°C	100°C	120°C							
4	16	16	10	31.5	17	6	0.7	971V-4	237454	€0.67
6	16	16	10	34.5	19	8	1.2	971V-6	237460	€0.79
8	16	12	10	37.5	20	8	1.7	971V-8	237462	€1.20
10	16	12	10	40.5	20.5	8	2.3	971V-10	237465	€1.87



**90° Elbow Adapter - Male - Positionable**

Product group **12** Max. allow. OP at ambient temp.  $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$  Thread cylindrical Thread sealed by a FKM O-Ring in recess not suitable for rotating or oscill. movement **NSF** **Plastic PVDF**

for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L2	L3	D1	S	Weight in [g]	Type	Order number	Price
		20°C	100°C	120°C									
4	M 5	16	10	3	3.5	14.5	11	10	8	3.4	930V-4FF-M5	367334	€10.15
4	G 1/8	16	10	3	5	18.5	19.5	12.5	13	18.3	930V-4FF-1/8	367335	€8.72
4	G 1/4	16	10	3	7	18.5	20	12.5	17	24.6	930V-4FF-1/4	367348	€9.63
6	M 5	16	10	3	3.5	16.5	11	12	8	3.8	930V-6FF-M5	367336	€10.12
6	G 1/8	16	10	3	5	19	19.5	12.5	13	15.9	930V-6FF-1/8	367337	€8.65
6	G 1/4	16	10	3	7	19	20	12.5	17	28.5	930V-6FF-1/4	367338	€9.64
8	G 1/8	16	8	3	5	22	22	14.5	14	19	930V-8FF-1/8	367339	€9.52
8	G 1/4	16	8	3	7	22	22.5	14.5	17	26.4	930V-8FF-1/4	367340	€10.39
8	G 3/8	16	8	3	8	22	22.5	14.5	19	35.2	930V-8FF-3/8	367341	€11.05
10	G 1/4	12	6	3	7	26	25.5	17	17	32.2	930V-10FF-1/4	367342	€11.81
10	G 3/8	12	6	3	8	26	25.5	17	19	40.7	930V-10FF-3/8	367343	€12.45
12	G 1/4	12	6	3	7	31	30.5	23	22	57.6	930V-12FF-1/4	367349	€17.95
12	G 3/8	12	6	3	8	31	30.5	23	22	58	930V-12FF-3/8	367350	€18.02



**90° Elbow Connector with Stem**

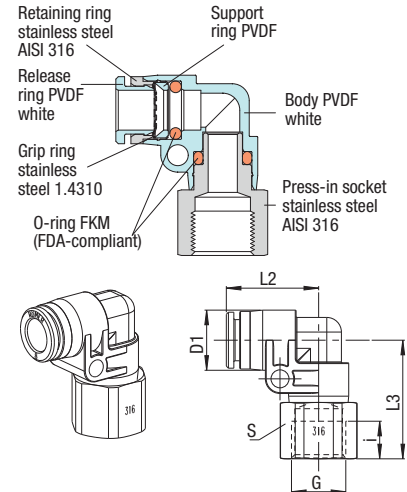
Product group **12** Max. allow. OP at ambient temp.  $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$  **NSF** **Plastic PVDF**

for tube OD	Stem D3	Max. allow. OP [bar] at medium temp.			l	L2	L3	D1	L5	Weight in [g]	Type	Order number	Price
		20°C	100°C	120°C									
4	4	16	10	3	17	18.5	21.5	12.5	8.5	3.7	911V-4FF-D4	367028	€4.70
4	6	16	10	3	18	18.5	22.5	12.5	8.5	3.8	911V-4FF-D6	367029	€4.80
6	4	16	10	3	17	19	21.5	12.5	8.5	3.8	911V-6FF-D4	367030	€4.83
6	6	16	10	3	18	19	22.5	12.5	8.5	3.8	911V-6FF-D6	367031	€4.83
6	8	16	10	3	20.5	22	26	14.5	10.5	5.6	911V-6FF-D8	367032	€5.38
8	8	16	8	3	20.5	22	26	14.5	10.5	5.7	911V-8FF-D8	367033	€5.41
8	10	16	8	3	24	25.5	32	17	14	8.5	911V-8FF-D10	367034	€7.07
10	10	12	6	3	24	26	32	17	14	10.1	911V-10FF-D10	367035	€7.62

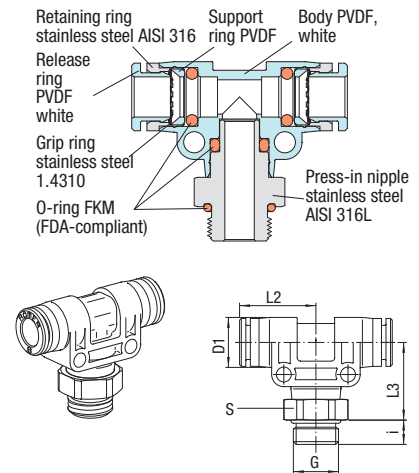


**90° Elbow Adapter - Female - Positionable**

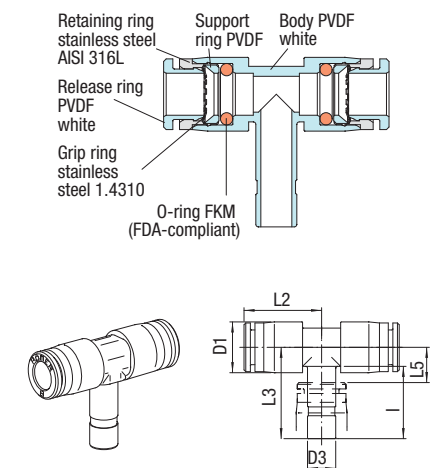
Product group	<b>12</b>	Max. allow. OP at ambient temp. T <sub>min</sub> 0°C, T <sub>max</sub> +60°C			Thread cylindrical			not suitable for rotating or oscill. movement				<b>Plastic PVDF</b>	
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L2	L3	D1	S	Weight in [g]	Type	Order number	Price
		20°C	100°C	120°C									
4	G 1/8	16	10	3	6.5	18.5	24.5	12.5	13	16.3	979V-4FF-1/8	367880	o. r.
4	G 1/4	16	10	3	9	18.5	27.5	12.5	17	24.7	979V-4FF-1/4	367881	o. r.
6	G 1/8	16	10	3	6.5	19	24.5	12.5	13	16.3	979V-6FF-1/8	367882	o. r.
6	G 1/4	16	10	3	9	19	27.5	12.5	17	24.7	979V-6FF-1/4	367883	o. r.
8	G 1/8	16	8	3	6.5	22	25	14.5	17	24.9	979V-8FF-1/8	367884	o. r.
8	G 1/4	16	8	3	9	22	30	14.5	17	27	979V-8FF-1/4	367885	o. r.

**Illustration**

**T-Adapter - Male - Positionable**

Product group	<b>12</b>	Max. allow. OP at ambient temp. T <sub>min</sub> 0°C, T <sub>max</sub> +60°C			Thread cylindrical			Thread sealed by a FKM O-Ring in recess			not suitable for rotating or oscill. movement				<b>Plastic PVDF</b>
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L2	L3	D1	S	Weight in [g]	Type	Order number	Price		
		20°C	100°C	120°C											
4	G 1/8	16	10	3	5	18.5	19.5	12.5	13	19.4	921V-4FF-1/8	367356	€11.08		
4	G 1/4	16	10	3	7	18.5	20	12.5	17	28.5	921V-4FF-1/4	367357	€11.88		
6	G 1/8	16	10	3	5	19	19.5	12.5	13	19.7	921V-6FF-1/8	367362	€10.98		
6	G 1/4	16	10	3	7	19	20	12.5	17	28.7	921V-6FF-1/4	367363	€11.99		
8	G 1/8	16	8	3	5	22	22	14.5	14	24.1	921V-8FF-1/8	367366	€12.18		
8	G 1/4	16	8	3	7	22	22.5	14.5	17	31.4	921V-8FF-1/4	367367	€13.03		
8	G 3/8	16	8	3	8	22	22.5	14.5	19	40.2	921V-8FF-3/8	367368	€13.62		
10	G 1/4	12	6	3	7	26	25.5	17	17	40.3	921V-10FF-1/4	367371	€15.46		
10	G 3/8	12	6	3	8	26	25.5	17	19	48.3	921V-10FF-3/8	367372	€16.17		
12	G 1/4	12	6	3	7	31	30.5	23	22	66.1	921V-12FF-1/4	367374	€24.33		
12	G 3/8	12	6	3	8	31	30.5	23	22	74.1	921V-12FF-3/8	367375	€24.40		

**Illustration**

**T-Stem Connector**

Product group	<b>12</b>	Max. allow. OP at ambient temp. T <sub>min</sub> 0°C, T <sub>max</sub> +60°C										<b>Plastic PVDF</b>	
for tube OD	Stem D3	Max. allow. OP [bar] at medium temp.			i	L2	L3	D1	L5	Weight in [g]	Type	Order number	Price
		20°C	100°C	120°C									
4	4	16	10	3	17	18.5	21.5	12.5	8.5	7.1	912V-4FF-D4	367036	€5.78
4	6	16	10	3	18	18.5	22.5	12.5	8.5	7.3	912V-4FF-D6	367037	€5.78
6	4	16	10	3	17	19	21.5	12.5	8.5	7.1	912V-6FF-D4	367038	€5.78
6	6	16	10	3	18	19	22.5	12.5	8.5	7.3	912V-6FF-D6	367039	€5.78
6	8	16	10	3	20.5	21.5	26	14.5	10.5	10.5	912V-6FF-D8	367040	€6.46
8	8	16	8	3	20.5	21.5	26	14.5	10.5	10.7	912V-8FF-D8	367041	€6.46
8	10	16	8	3	24	25.5	32	17	14	16.2	912V-8FF-D10	367042	€6.46
10	10	12	6	3	24	26	32	17	14	16.8	912V-10FF-D10	367043	€6.86

**Illustration**


### Illustration

### T-Adapter - Female - Positionable

Product group **12** Max. allow. OP at ambient temp.  $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$  Thread cylindrical not suitable for rotating or oscill. movement NSF Plastic PVDF

for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L2	L3	D1	S	Weight in [g]	Type	Order number	Price
		20°C	100°C	120°C									
4	G 1/8	16	10	3	6.5	18.5	24.5	12.5	13	19.9	970V-4FF-1/8	367888	o. r.
4	G 1/4	16	10	3	9	18.5	27.5	12.5	17	28.3	970V-4FF-1/4	367889	o. r.
6	G 1/8	16	10	3	6.5	19	24.5	12.5	13	19.9	970V-6FF-1/8	367890	o. r.
6	G 1/4	16	10	3	9	19	27.5	12.5	17	28.3	970V-6FF-1/4	367891	o. r.
8	G 1/8	16	8	3	6.5	22	25	14.5	17	29.9	970V-8FF-1/8	367892	o. r.
8	G 1/4	16	8	3	9	22	30	14.5	17	32	970V-8FF-1/4	367893	o. r.

### Illustration

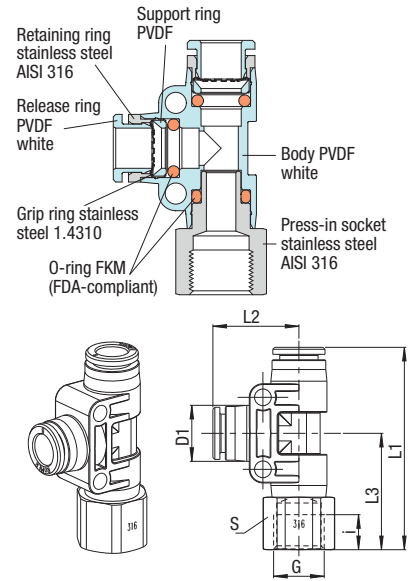
### Side T-Adapter - Male - Positionable

Product group **12** Max. allow. OP at ambient temp.  $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$  Thread cylindrical Thread sealed by a FKM O-Ring in recess not suitable for rotating or oscill. movement NSF Plastic PVDF

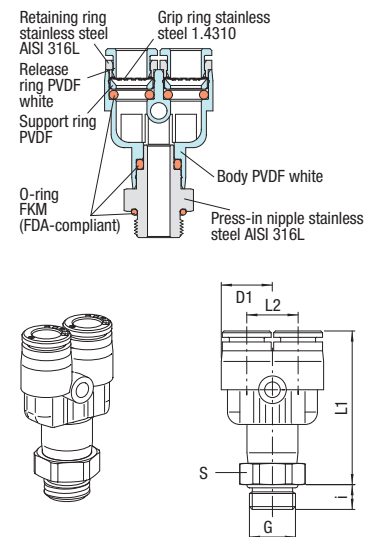
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L1	L2	L3	D1	S	Weight in [g]	Type	Order number	Price
		20°C	100°C	120°C										
4	G 1/8	16	10	3	5	38	18.5	19.5	12.5	13	19.2	922V-4FF-1/8	367406	€11.08
4	G 1/4	16	10	3	7	38.5	18.5	20	12.5	17	28.3	922V-4FF-1/4	367407	€11.88
6	G 1/8	16	10	3	5	38.5	19	19.5	12.5	13	19.7	922V-6FF-1/8	367412	€10.98
6	G 1/4	16	10	3	7	39	19	20	12.5	17	28.4	922V-6FF-1/4	367413	€11.99
8	G 1/8	16	8	3	5	44	22	22	14.5	14	23.8	922V-8FF-1/8	367416	€12.18
8	G 1/4	16	8	3	7	44.5	22	22.5	14.5	17	31.4	922V-8FF-1/4	367417	€13.03
8	G 3/8	16	8	3	8	44.5	22	22.5	14.5	19	39.8	922V-8FF-3/8	367418	€13.62
10	G 1/4	12	6	3	7	51.5	26	25.5	17	17	39.8	922V-10FF-1/4	367421	€15.46
10	G 3/8	12	6	3	8	51.5	26	25.5	17	19	48.2	922V-10FF-3/8	367422	€16.17
12	G 1/4	12	6	3	7	61.5	31	30.5	23	22	66.1	922V-12FF-1/4	367424	€24.33
12	G 3/8	12	6	3	8	61.5	31	30.5	23	22	74.1	922V-12FF-3/8	367425	€24.40

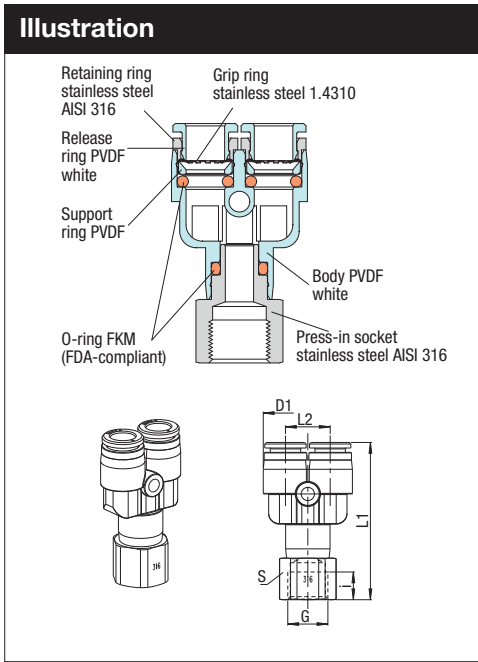
**Side T-Adapter - Female - Positionable**

Product group		12			Max. allow. OP at ambient temp. T <sub>min</sub> 0°C, T <sub>max</sub> +60°C			Thread cylindrical			not suitable for rotating or oscill. movement			NSF		Plastic PVDF	
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L1	L2	L3	D1	S	Weight in [g]	Type	Order number	Price			
		20°C	100°C	120°C													
4	G 1/8	16	10	3	6.5	43	18.5	24.5	12.5	13	19.9	923V-4FF-1/8	367810	o. r.			
4	G 1/4	16	10	3	9	46	18.5	27.5	12.5	17	28.3	923V-4FF-1/4	367811	o. r.			
6	G 1/8	16	10	3	6.5	43.5	19	24.5	12.5	13	19.9	923V-6FF-1/8	367812	o. r.			
6	G 1/4	16	10	3	9	46.5	19	27.5	12.5	17	28.3	923V-6FF-1/4	367813	o. r.			
8	G 1/8	16	8	3	6.5	47	22	25	14.5	14	29.9	923V-8FF-1/8	367814	o. r.			
8	G 1/4	16	8	3	9	52.5	22	30.5	14.5	17	32	923V-8FF-1/4	367815	o. r.			

**Illustration**

**Y-Adapter - Male - Positionable**

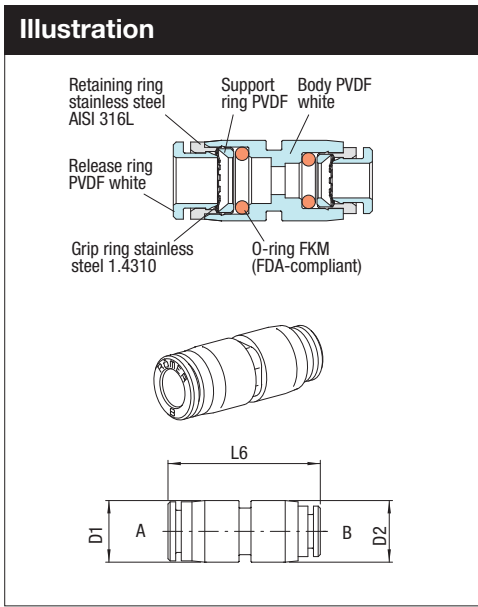
Product group		12			Max. allow. OP at ambient temp. T <sub>min</sub> 0°C, T <sub>max</sub> +60°C			Thread cylindrical			Thread sealed by a FKM O-Ring in recess			not suitable for rotating or oscill. movement		NSF		Plastic PVDF	
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L1	L2	D1	S	Weight in [g]	Type	Order number	Price						
		20°C	100°C	120°C															
4	G 1/8	16	10	3	5	38	12.5	12.5	13	19.2	992V-4FF-1/8	367456	€11.08						
4	G 1/4	16	10	3	7	38.5	12.5	12.5	17	28	992V-4FF-1/4	367457	€11.88						
6	G 1/8	16	10	3	5	38.5	12.5	12.5	13	19.6	992V-6FF-1/8	367462	€10.98						
6	G 1/4	16	10	3	7	39	12.5	12.5	17	28.3	992V-6FF-1/4	367463	€11.99						
8	G 1/8	16	8	3	5	43	14.5	14.5	14	24.1	992V-8FF-1/8	367466	€12.18						
8	G 1/4	16	8	3	7	43.5	14.5	14.5	17	31.8	992V-8FF-1/4	367467	€13.03						
8	G 3/8	16	8	3	8	43.5	14.5	14.5	19	40.2	992V-8FF-3/8	367468	€13.62						
10	G 1/4	12	6	3	7	49	17	17	17	38.6	992V-10FF-1/4	367471	€15.46						
10	G 3/8	12	6	3	8	49	17	17	19	47.1	992V-10FF-3/8	367472	€16.17						
12	G 1/4	12	6	3	7	55	20.5	21	22	65.1	992V-12FF-1/4	367474	€24.33						
12	G 3/8	12	6	3	8	55	20.5	21	22	74.1	992V-12FF-3/8	367475	€24.40						

**Illustration**




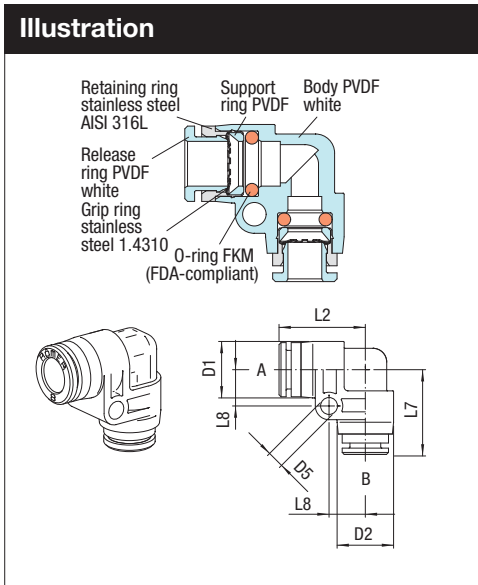
### 90° Elbow Adaptor - Female - Positionable

Product group	<b>12</b>	Max. allow. OP at ambient temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$			Thread cylindrical	not suitable for rotating or oscill. movement			Plastic PVDF				
for tube OD	G	Max. allow. OP [bar] at medium temp.			i	L1	L2	D1	S	Weight in [g]	Type	Order number	Price
		20°C	100°C	120°C									
4	G 1/8	16	10	3	6.5	43	12.5	12.5	13	19.9	993V-4FF-1/8	367820	o. r.
4	G 1/4	16	10	3	9	46	12.5	12.5	17	28.4	993V-4FF-1/4	367821	o. r.
6	G 1/8	16	10	3	6.5	43.5	12.5	12.5	13	19.7	993V-6FF-1/8	367822	o. r.
6	G 1/4	16	10	3	9	46.5	12.5	12.5	17	28.1	993V-6FF-1/4	367823	o. r.
8	G 1/8	16	8	3	6.5	46.5	14.5	14.5	14	30	993V-8FF-1/8	367824	o. r.
8	G 1/4	16	8	3	9	51.5	14.5	14.5	17	32.1	993V-8FF-1/4	367825	o. r.



### Straight Adapter

Product group	<b>12</b>	Max. allow. OP at ambient temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$				Plastic PVDF					
for tube OD	for tube BD	Max. allow. OP [bar] at medium temp.			L6	D1	D2	Weight in [g]	Type	Order number	Price
		20°C	100°C	120°C							
4	4	16	10	3	30	10.5	10.5	6.2	958V-4FF	367504	€5.26
6	4	16	10	3	32	12.5	12.5	6.4	958V-6-4FF	367508	€5.36
6	6	16	10	3	32.5	12.5	12.5	6.6	958V-6FF	367510	€5.40
8	6	16	8	3	36	14.5	14.5	8.6	958V-8-6FF	367511	€5.92
8	8	16	8	3	36	14.5	14.5	8.8	958V-8FF	367512	€5.96
10	8	12	6	3	40.5	17	17	13	958V-10-8FF	367514	€7.54
10	10	12	6	3	41	17	17	13.5	958V-10FF	367515	€8.38
12	10	12	6	3	45	21	21	24.4	958V-12-10FF	367516	€11.24
12	12	12	6	3	45	21	21	26.8	958V-12FF	367517	€12.15



### 90° Elbow Connector

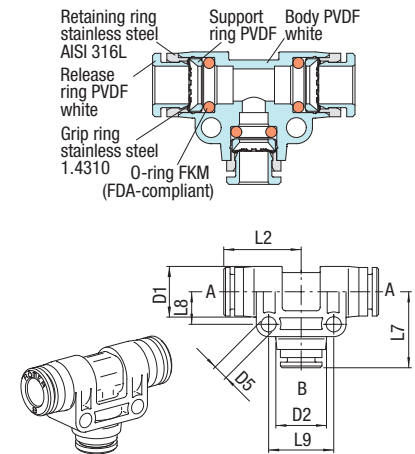
Product group	<b>12</b>	Max. allow. OP at ambient temp. $T_{min} 0^{\circ}C, T_{max} +60^{\circ}C$				Plastic PVDF								
for tube OD	for tube BD	Max. allow. OP [bar] at medium temp.			L2	L7	L8	D1	D2	D5	Weight in [g]	Type	Order number	Price
		20°C	100°C	120°C										
4	4	16	10	3	18.5	18.5	8.3	12.5	12.5	4.3	7.3	955V-4FF	367554	€5.64
6	4	16	10	3	19	18.5	8.3	12.5	12.5	4.3	7.4	955V-6-4FF	367558	€5.71
6	6	16	10	3	19	19	8.3	12.5	12.5	4.3	7.5	955V-6FF	367560	€5.78
8	6	16	8	3	22	21.5	9.3	14.5	14.5	4.3	10.2	955V-8-6FF	367561	€6.34
8	8	16	8	3	22	22	9.3	14.5	14.5	4.3	10	955V-8FF	367562	€6.46
10	6	12	6	3	26	25	12	17	17	4.3	16	955V-10-6FF	367563	€8.05
10	8	12	6	3	26	25.5	12	17	17	4.3	19	955V-10-8FF	367564	€8.13
10	10	12	6	3	26	26	12	17	17	4.3	16	955V-10FF	367565	€9.03
12	12	12	6	3	31	31	12	23	23	4.3	32	955V-12FF	367567	€12.77

**T-Connector**

 Product group **12** Max. allow. OP at ambient temp.  
 $T_{min}$  0°C,  $T_{max}$  +60°C


Plastic PVDF

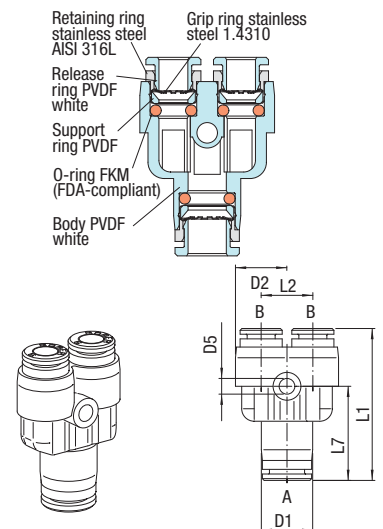
for tube OD	for tube BD	Max. allow. OP [bar] at medium temp.			L2	L7	L8	L9	D1	D2	D5	Weight in [g]	Type	Order number	Price
		20°C	100°C	120°C											
4	4	16	10	3	18.5	18.5	8.3	16.5	12.5	12.5	4.3	10.7	954V-4FF	367604	€8.50
6	4	16	10	3	19	18.5	8.3	16.5	12.5	12.5	4.3	11.1	954V-6-4FF	367608	€8.60
6	6	16	10	3	19	19	8.3	16.5	12.5	12.5	4.3	11.2	954V-6FF	367610	€8.66
8	6	16	8	3	22	21.5	9.3	18.5	14.5	14.5	4.3	15.4	954V-8-6FF	367611	€9.50
8	8	16	8	3	22	22	9.3	18.5	14.5	14.5	4.3	15.4	954V-8FF	367612	€9.59
10	6	12	6	3	26	25	12	24	17	17	4.3	24.7	954V-10-6FF	367613	€12.85
10	8	12	6	3	26	25.5	12	24	17	17	4.3	24.7	954V-10-8FF	367614	€12.62
10	10	12	6	3	26	26	12	24	17	17	4.3	25.1	954V-10FF	367615	€13.66
12	12	12	6	3	31	31	12	24	23	23	4.3	o. r.	954V-12FF	367617	€18.86

**Illustration**

**Y-Connector**

 Product group **12** Max. allow. OP at ambient temp.  
 $T_{min}$  0°C,  $T_{max}$  +60°C


Plastic PVDF

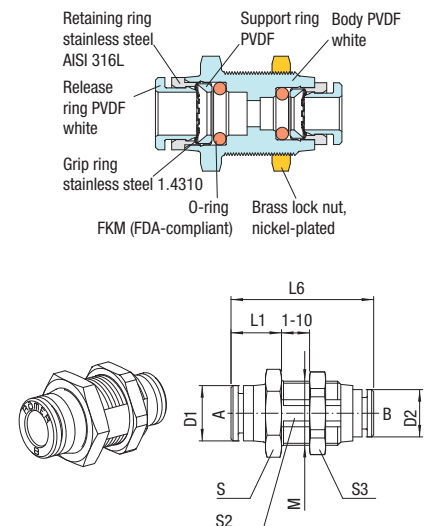
for tube OD	for tube BD	Max. allow. OP [bar] at medium temp.			L1	L2	L7	D1	D2	D5	Weight in [g]	Type	Order number	Price
		20°C	100°C	120°C										
4	4	16	10	3	37	12.5	22.5	12.5	12.5	3.3	10.8	982V-4FF	367654	€8.50
6	4	16	10	3	37.5	12.5	23	12.5	12.5	3.3	11	982V-6-4FF	367658	€8.60
6	6	16	10	3	38	12.5	23	12.5	12.5	3.3	11.2	982V-6FF	367660	€8.66
8	6	16	8	3	43	14.5	26.5	14.5	14.5	4.3	16	982V-8-6FF	367661	€9.50
8	8	16	8	3	43	14.5	26.5	14.5	14.5	4.3	16.9	982V-8FF	367662	€9.59
10	8	12	6	3	48.5	17	31	17	17	4.3	23.1	982V-10-8FF	367664	€12.85
10	10	12	6	3	49	17	31	17	17	4.3	24.4	982V-10FF	367665	€12.62
12	12	12	6	3	55.5	20.5	35.5	21	21	4.3	38	982V-12FF	367667	€18.86

**Illustration**

**Straight Bulkhead Connector**

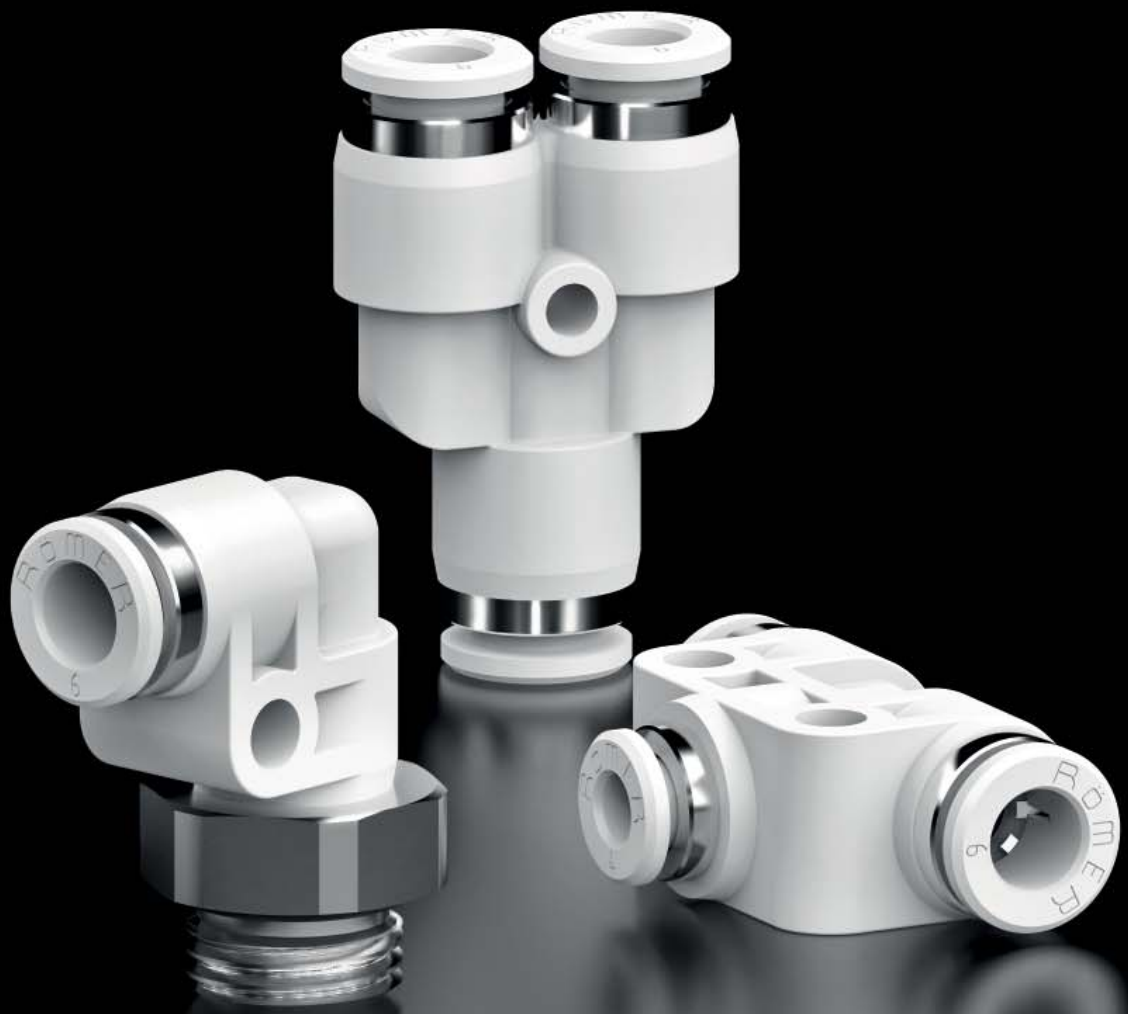
 Product group **12** Max. allow. OP at ambient temp.  
 $T_{min}$  0°C,  $T_{max}$  +60°C


Plastic PVDF

for tube OD	for tube BD	Max. allow. OP [bar] at medium temp.			M	L1	L6	D1	D2	S	S2	S3	Weight in [g]	Type	Order number	Price
		20°C	100°C	120°C												
4	4	16	10	3	M14x1	10.5	31.5	9.5	9.5	17	12.5	17	10	959V-4FF	367704	€6.11
6	4	16	10	3	M14x1	11	32	11.5	9.5	17	12.5	17	10	959V-6-4FF	367708	€6.31
6	6	16	10	3	M14x1	11	32.5	11.5	11.5	17	12.5	17	10.4	959V-6FF	367710	€6.19
8	6	16	8	3	M16x1	12.5	36	14	11.5	19	14.5	19	13.6	959V-8-6FF	367711	€6.89
8	8	16	8	3	M16x1	12.5	36	14	14	19	14.5	19	13.6	959V-8FF	367712	€6.86
10	8	12	6	3	M20x1	14	40.5	16.5	14	22	18	24*	22.6	959V-10-8FF	367714	€8.69
10	10	12	6	3	M20x1	14	41	16.5	16.5	22	18	24*	23	959V-10FF	367715	€9.69

**Illustration**


\* S24 = Octagon



**AVS ELSA Push-in Fittings Stainless Steel AISI 316L (1.4404)**


**ELSA** the Established push-in connector from AVS-Römer


**Stainless steel version**

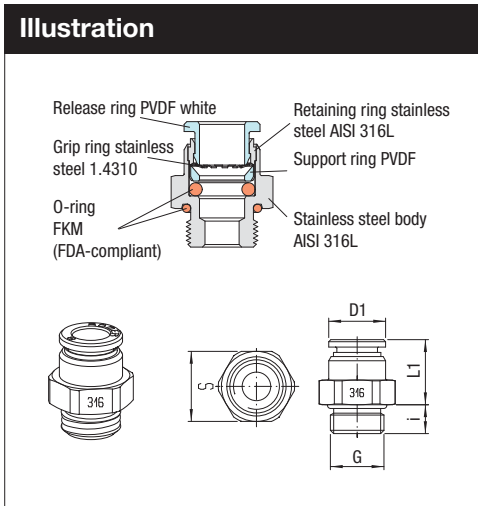
Operating pressure Technical vacuum up to maximum pressure as stated in the respective specification table under PN. Temperature range 0°C to +120°C (for restrictions see specification table)

**Application**

ELSA push-in fittings are used in particular for aggressive gases and liquid media under harsh operating conditions. These push-in fittings are equipped with FDA-compliant FKM sealing rings as standard, on request they are available with FDA-compliant and KTW-approved EPDM sealing rings.

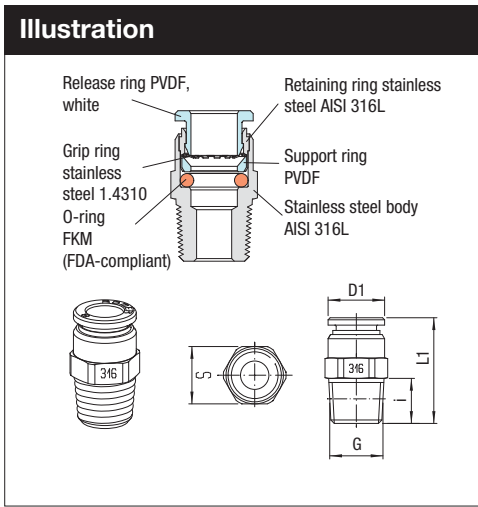
**CHARACTERISTICS**
**BODY MATERIAL / SUITABILITY**

<b>Stainless steel AISI 316L</b>	<b>Corresponds to 1.4404</b> stainless steel. Suitable for many aggressive media, in particular at higher pressures. The FKM seal is FDA-compliant and can be used in the food and pharmaceutical industries.					
<b>Other materials:</b>	See relevant products					
<b>Approval</b>	NSF/ANSI 169					
<b>PIPE / TUBE</b>						
<b>Outside Ø OD [mm]</b>	4, 6 and 8	10, 12				
<b>Perm. Tolerance [mm]</b>	± 0.1	± 0.15				
<b>Perm. grades</b>	Polyamide (PA), polyurethane (PU), fluorine polymer (FEP and PFA)					
<b>THREAD</b>						
<b>External thread</b>	"M" cylindrical thread: Metric ISO thread M5					
<b>External thread</b>	"G" cylindrical thread: Whitworth pipe thread DIN ISO 228-1 G 1/8 up to G 3/8					
<b>External thread</b>	"R" conical thread: Whitworth pipe thread DIN 2999-1 and ISO 7/1 R 1/8 up to R 1/2. Designed for pairing with internal thread according to DIN ISO 228-1.					
<b>Internal thread</b>	"G" cylindrical thread: Whitworth pipe thread DIN ISO 228-1 G 1/8 up to G 1/2					
<b>OPERATING PRESSURE / TEMPERATURE</b>						
<b>Metal fitting</b>	<table border="1"> <tr> <td>PN</td> <td>T<sub>min</sub> 0°C</td> </tr> <tr> <td>16</td> <td>T<sub>max</sub> +120°C</td> </tr> </table>	PN	T <sub>min</sub> 0°C	16	T <sub>max</sub> +120°C	Means that the allowable operating pressure OP corresponds to the given nominal pressure PN in the specified temperature range "T".
PN	T <sub>min</sub> 0°C					
16	T <sub>max</sub> +120°C					
<b>Allowable operating pressure and operating temperature of pipe / tube must be observed!</b>						
<b>THREAD SEAL</b>						
<b>Cylindrical threaded nipple</b>	Thread seal FKM O-ring	applies to all cylindrical threaded nipples				
<b>Tapered threaded nipple</b>	Seal with Teflon tape winding (FDA-compliant) on request					
<b>"ROTATABLE" VERSION</b>						
<b>90° elbow- and T- adaptor - male</b>	not suitable for rotating or oscill. movements	Some types of fittings rotate 360° in order to facilitate alignment during assembly or for compensating movement.				
<b>SPECIAL VERSIONS (NOT INCLUDED IN THE CATALOGUE)</b>						
We also produce ELSA push-in connectors in various special versions not included in the catalogue, as well as customer-specific versions. <ul style="list-style-type: none"> <li>• other O-ring materials such as EPDM, FDA-compliant</li> <li>• for pipes / tubes with inch dimensions</li> <li>• threaded connection, metric</li> </ul>						



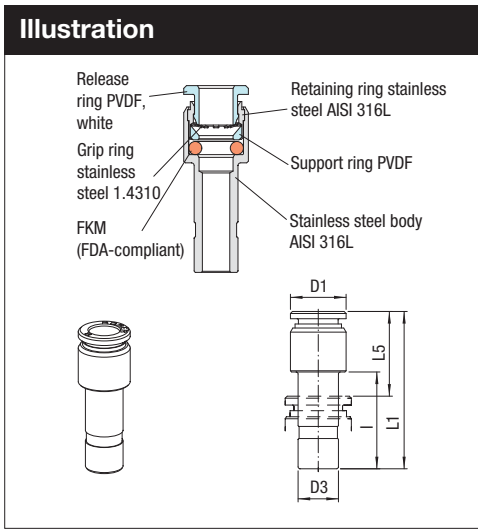
### Straight Adapter - Male

Product group	<b>13</b>	PN 20	T <sub>min</sub> 0°C T <sub>max</sub> +120°C	Thread cylindrical	Thread sealed by a FKM O-Ring in recess		Stainless steel AISI 316L		
for tube OD	G	i	L1	D1	S	Weight in [g]	Type	Order number	Price
4	M 5	3.5	16.5	8	8	3.4	951X4-4FF-M5	380054	€9.19
4	G 1/8	5	14	10	13	8.6	951X4-4FF-1/8	380056	€8.73
6	M 5	3.5	17.5	10	10	4.4	951X4-6FF-M5	380060	€9.66
6	G 1/8	5	15	12	13	7.9	951X4-6FF-1/8	380062	€8.80
6	G 1/4	7	14.5	12	17	15.9	951X4-6FF-1/4	380063	€8.99
8	G 1/8	5	20	14	14	11.3	951X4-8FF-1/8	380066	€9.05
8	G 1/4	7	16	14	17	14.4	951X4-8FF-1/4	380067	€9.16
8	G 3/8	8	16	14	19	22.8	951X4-8FF-3/8	380068	€11.60
10	G 1/4	7	22.5	16.5	17	19.6	951X4-10FF-1/4	380071	€11.55
10	G 3/8	8	17.5	16.5	19	21.3	951X4-10FF-3/8	380072	€12.54
10	G 1/2	9	15.5	16.5	24	36.6	951X4-10FF-1/2	380073	€16.31
12	G 1/4	7	25	20	22	34.3	951X4-12FF-1/4	380074	€14.39
12	G 3/8	8	19.5	20	22	7.4	951X4-12FF-3/8	380075	€14.39



### Straight Adapter - Male

Product group	<b>13</b>	PN 20	T <sub>min</sub> 0°C T <sub>max</sub> +120°C	Thread conical			Stainless steel AISI 316L		
for tube OD	G	i	L1	D1	S	Weight in [g]	Type	Order number	Price
4	R 1/8	7.5	20.5	10	10	6.6	951X4-4FF-1/8 K	380456	€8.74
6	R 1/8	7.5	21.5	12	12	7.5	951X4-6FF-1/8K	380462	€8.82
6	R 1/4	11	24.5	12	14	14.5	951X4-6FF-1/4K	380463	€9.06
8	R 1/8	7.5	27	14	14	12.3	951X4-8FF-1/8K	380466	€9.04
8	R 1/4	11	26.5	14	14	13.3	951X4-8FF-1/4 K	380467	€9.19
8	R 3/8	11.5	24.5	14	17	21.7	951X4-8FF-3/8K	380468	€10.81
10	R 1/4	11	32.5	16.5	17	22.3	951X4-10FF-1/4K	380471	€11.58
10	R 3/8	11.5	28	16.5	17	21.6	951X4-10FF-3/8K	380472	€11.81
10	R 1/2	14	26.5	16.5	22	38.7	951X4-10FF-1/2K	380473	€13.21
12	R 1/2	14	31.5	20	22	40.4	951X4-12FF-1/2K	380476	€15.07



### Straight Stem Reducer

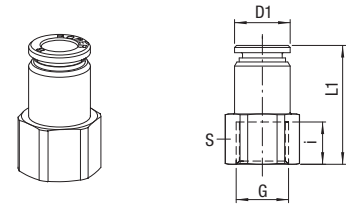
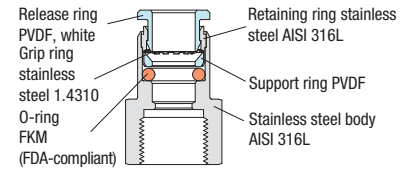
Product group	<b>13</b>	PN 20	T <sub>min</sub> 0°C T <sub>max</sub> +120°C				Stainless steel AISI 316L		
for tube OD	D3	I	L1	L5	D1	Weight in [g]	Type	Order number	Price
4	6	18	31.5	17.5	10	6.3	947X4-4FF-D6	383652	o. r.
6	8	20	34	18.5	12	9.3	947X4-6FF-D8	383653	o. r.



**Straight Adapter - Female**

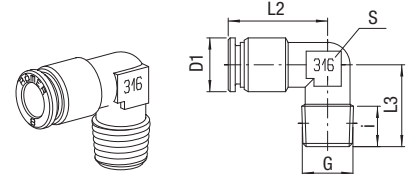
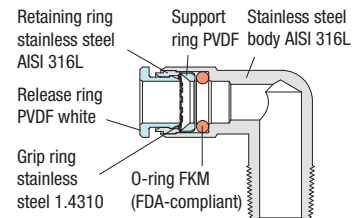
Product group	<b>13</b>	PN	20	T <sub>min</sub>	0°C	T <sub>max</sub>	+120°C	Thread	cylindrical	NSF	Stainless steel AISI 316L
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for tube OD	G	i	L1	D1	S	Weight in [g]	Type	Order number	Price
4	G 1/8	8	24	10	13	10.8	946X4-4FF-1/8	380706	o. r.
6	G 1/8	8	25	12	13	12.5	946X4-6FF-1/8	380712	€10.95
6	G 1/4	10.5	27.5	12	17	20.5	946X4-6FF-1/4	380713	o. r.
8	G 1/8	8	27	14	14	16.2	946X4-8FF-1/8	380716	€11.04
8	G 1/4	10.5	29.5	14	17	22.3	946X4-8FF-1/4	380717	o. r.
8	G 3/8	11.5	30.5	14	19	23.3	946X4-8FF-3/8	380718	€11.96
10	G 1/2	15	36.5	16.5	24	45.7	946X4-10FF-1/2	380719	o. r.

**Illustration**

**90° Elbow Adapter - Male**

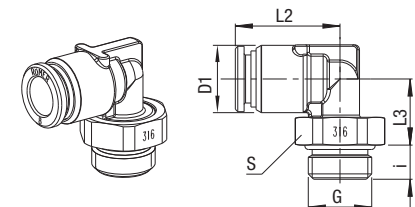
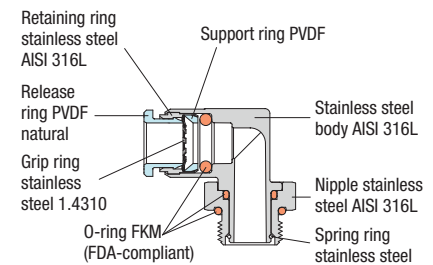
Product group	<b>13</b>	PN	20	T <sub>min</sub>	0°C	T <sub>max</sub>	+120°C	Thread	conical	NSF	Stainless steel AISI 316L
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for tube OD	G	i	L2	L3	D1	S	Weight in [g]	Type	Order number	Price
4	R 1/8	9	22	18.5	10	10	13.6	950X4-4FF-1/8K	380856	€20.64
6	R 1/8	9	24	18.5	12	10	14.2	950X4-6FF-1/8K	380862	€20.72
6	R 1/4	10.5	24	21	12	10	17.6	950X4-6FF-1/4K	380863	€21.35
8	R 1/8	8.5	27.5	18.5	14	13	24.4	950X4-8FF-1/8K	380866	€26.12
8	R 1/4	10.5	27.5	23	14	13	26.8	950X4-8FF-1/4K	380867	€26.75
8	R 3/8	11	27.5	24.5	14	13	33.6	950X4-8FF-3/8K	380868	€27.34
10	R 1/4	10.5	29.5	23	16.5	13	26.8	950X4-10FF-1/4K	380871	€27.40
10	R 3/8	11	29.5	24.5	16.5	13	33.2	950X4-10FF-3/8K	380872	€27.98
12	R 3/8	11	32	24.5	20	17	46.5	950X4-12FF-3/8K	380875	€32.53

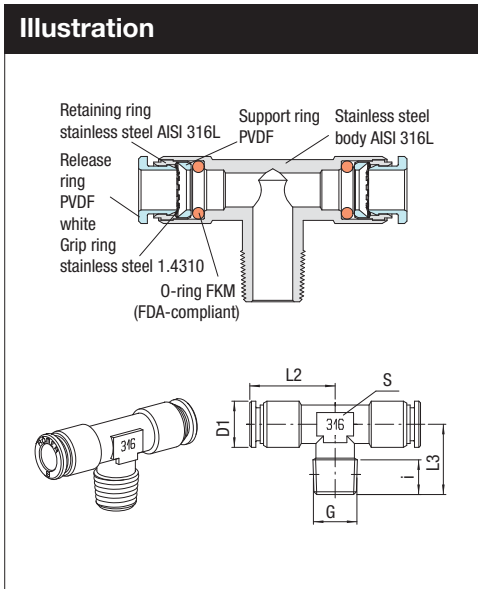
**Illustration**

**90° Elbow Adapter - Male - Positionable**

Product group	<b>13</b>	PN	16	T <sub>min</sub>	0°C	T <sub>max</sub>	+120°C	Thread	cylindrical	Thread sealed by a FKM O-Ring in recess	not suitable for rotating or oscill. movement	NSF	Stainless steel AISI 316L
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for tube OD	G	i	L2	L3	D1	S	Weight in [g]	Type *	Order number	Price
4	M 5	3.5	16.5	11	10.5	8	8.5	930X4M-4FF-M5	384103	€12.91
4	G 1/8	5	17	11.5	10.5	13	12.5	930X4M-4FF-1/8	384104	€13.81
4	G 1/4	7	17	11.5	10.5	17	19	930X4M-4FF-1/4	384105	€16.79
6	M 5	3.5	17.5	12	12.5	8	9.8	930X4M-6FF-M5	384106	€14.47
6	G 1/8	5	18.5	12.5	12.5	13	13.8	930X4M-6FF-1/8	384107	€14.89
6	G 1/4	7	18.5	12.5	12.5	17	20.8	930X4M-6FF-1/4	384108	€17.13
8	G 1/8	5	20	13.5	14.5	13	16.7	930X4M-8FF-1/8	384109	€18.28
8	G 1/4	7	21.5	13.5	14.5	17	23.8	930X4M-8FF-1/4	384110	o. r.
8	G 3/8	8	21.5	14	14.5	19	30.6	930X4M-8FF-3/8	384111	o. r.
10	G 1/4	7	29.5	17.5	16.5	17	35.5	930X4-10FF-1/4	381071	€30.46
10	G 3/8	8	29.5	19.5	16.5	19	40.1	930X4-10FF-3/8	381072	€31.15
12	G 1/4	7	32	18.5	20	17	54	930X4-12FF-1/4	381074	€33.67
12	G 3/8	8	32	19.5	20	19	58	930X4-12FF-3/8	381075	€34.45

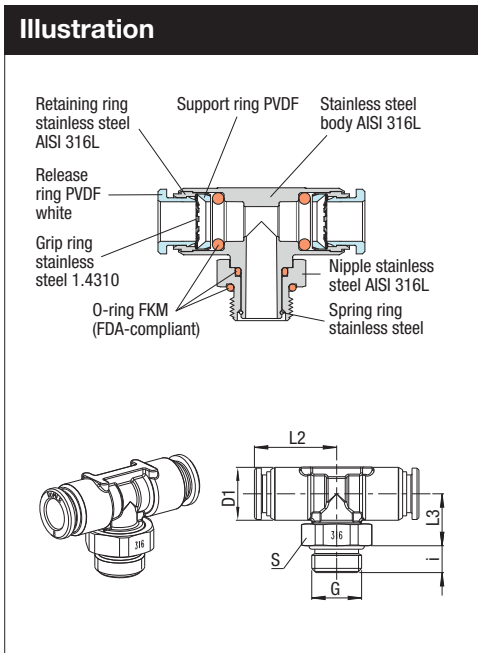
**Illustration**


\*X4M-... = fitting AVS-MIM-line



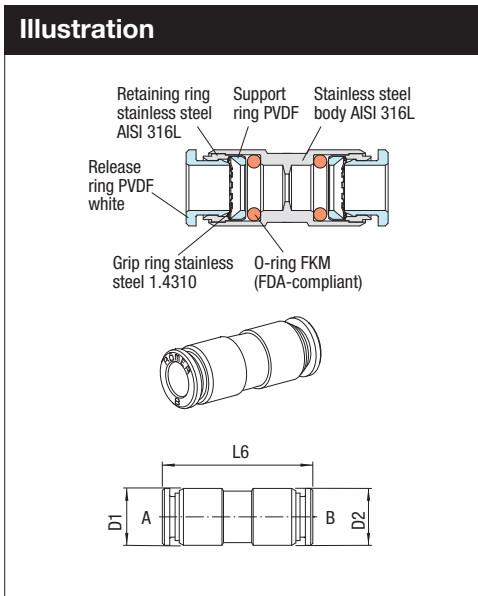
### T-Adapter - Male

Product group	<b>13</b>	PN 20	T <sub>min</sub> 0°C T <sub>max</sub> +120°C	Thread conical	NSF	Stainless steel AISI 316L				
for tube OD	G	i	L2	L3	D1	S	Weight in [g]	Type	Order number	Price
4	R 1/8	9	22	18.5	10	10	19.3	941X4-4FF-1/8K	381856	€27.34
6	R 1/8	9	24	18.5	12	10	21.1	941X4-6FF-1/8K	381862	€27.47
6	R 1/4	10.5	24	21	12	10	24.6	941X4-6FF-1/4K	381863	€28.11
8	R 1/8	8.5	27.5	18.5	14	13	35	941X4-8FF-1/8K	381866	€34.79
8	R 1/4	10.5	27.5	23	14	13	38	941X4-8FF-1/4K	381867	€35.42
8	R 3/8	11	27.5	24.5	14	13	43	941X4-8FF-3/8K	381868	€36.02
10	R 1/4	10.5	29.5	23	16.5	13	39.2	941X4-10FF-1/4K	381871	€36.71
10	R 3/8	11	29.5	24.5	16.5	13	43	941X4-10FF-3/8K	381872	€37.29
12	R 3/8	11	32	24.5	20	17	66.3	941X4-12FF-3/8K	381875	€38.62



### T-Adapter - Male - Positionable

Product group	<b>13</b>	PN 16	T <sub>min</sub> 0°C T <sub>max</sub> +120°C	Thread cylindrical	Thread sealed by a FKM O-Ring in recess	NSF	Stainless steel AISI 316L			
for tube OD	G	i	L2	L3	D1	S	Weight in [g]	Type *	Order number	Price
4	M 5	3.5	16.5	11	10,5	8	11.6	921X4M-4FF-M5	384303	€18.46
4	G 1/8	5	17.5	11.5	10,5	13	15.9	921X4M-4FF-1/8	384304	€19.36
4	G 1/4	7	17.5	11.5	10,5	17	22.5	921X4M-4FF-1/4	384305	€22.34
6	M 5	3.5	17.5	12	12,5	8	13.9	921X4M-6FF-M5	384306	€20.09
6	G 1/8	5	18.5	12.5	12,5	13	18.5	921X4M-6FF-1/8	384307	€20.51
6	G 1/4	7	18.5	12.5	12,5	17	25.9	921X4M-6FF-1/4	384308	€22.75
8	G 1/8	5	20	13.5	14	13	23.0	921X4-8FF-1/8	382066	€36.62
8	G 1/4	7	21.5	13.5	14	17	30.4	921X4-8FF-1/4	382067	€37.31
8	G 3/8	8	21.5	14	14	19	37.4	921X4-8FF-3/8	382068	€38.94
10	G 1/4	7	29.5	17.5	16.5	17	47.2	921X4-10FF-1/4	382071	€39.76
10	G 3/8	8	29.5	19.5	16.5	19	52.6	921X4-10FF-3/8	382072	€40.45
12	G 3/8	8	32	19.5	20	19	77.7	921X4-12FF-3/8	382075	€41.88



### Straight Connector

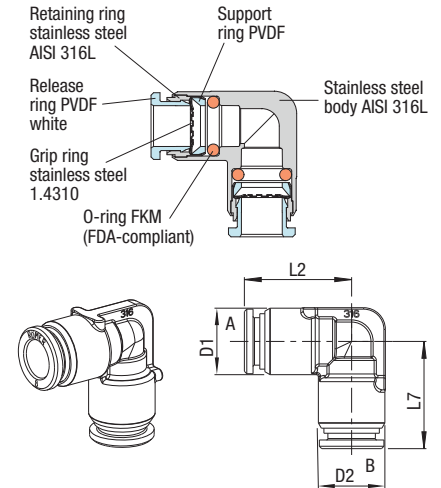
Product group	<b>13</b>	PN 20	T <sub>min</sub> 0°C T <sub>max</sub> +120°C	NSF	Stainless steel AISI 316L			
for tube AD	for tube BD	L6	D1	D2	Weight in [g]	Type	Order number	Price
4	4	31	10	10	8.2	958X4-4FF	383054	o. r.
6	6	34	12	12	10.2	958X4-6FF	383060	€13.20
8	8	36.5	14	14	13.7	958X4-8FF	383062	€14.01

\*X4M-... = fitting AVS-MIM-line

**90° Elbow Connector**

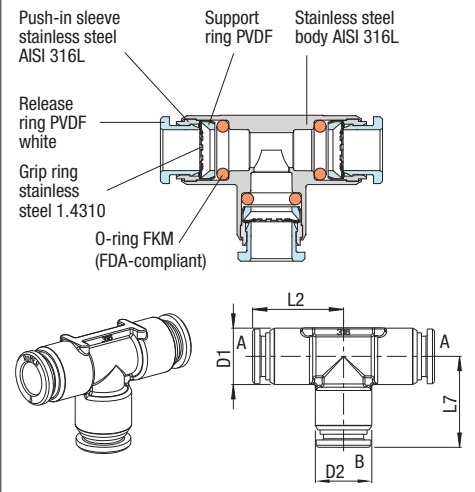
Product group	<b>13</b>	PN	20	T <sub>min</sub>	0°C	T <sub>max</sub>	+120°C		Stainless steel AISI 316L
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for tube OD	for tube BD	L2	L7	D1	D2	Weight in [g]	Type *	Order number	Price
4	4	17.5	17.5	10,5	10,5	8.3	955X4M-4FF	384403	€11.51
6	6	19.5	19.5	12,5	12,5	11.6	955X4M-6FF	384405	€13.67
8	8	22.5	22.5	14,5	14,5	16.3	955X4M-8FF	384407	€16.65
10	10	26	26	16.5	16.5	25.5	955X4M-10FF	384409	o. r.
12	12	32	32	20	20	53.6	955X4-12FF	383142	€30.89

**Illustration**

**T-Connector**

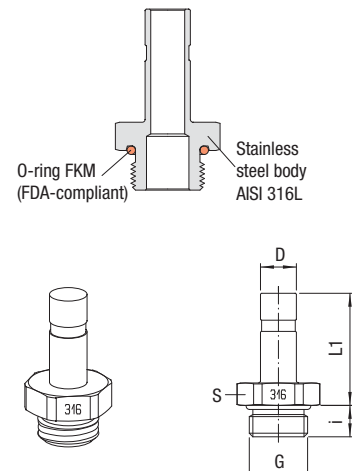
Product group	<b>13</b>	PN	20	T <sub>min</sub>	0°C	T <sub>max</sub>	+120°C		Stainless steel AISI 316L
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for tube OD	for tube BD	L2	L7	D1	D2	Weight in [g]	Type *	Order number	Price
4	4	17.5	17.5	10,5	10,5	11.5	954X4M-4FF	384453	€16.69
6	6	19.5	19.5	12,5	12,5	15.8	954X4M-6FF	384455	€17.57
8	8	22.5	22.5	14,5	14,5	21.7	954X4M-8FF	384457	€22.64
10	10	26	26	16.5	16.5	34.1	954X4M-10FF	384459	o. r.
12	12	32	32	20	20	73.3	954X4-12FF	383242	€42.37

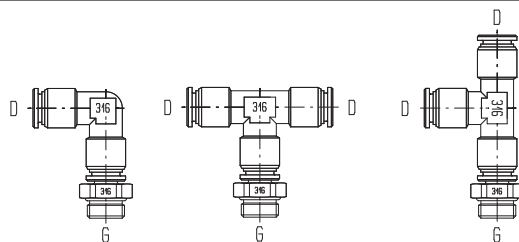
**Illustration**

**Straight Stem Adapter**

Product group	<b>13</b>	PN	20	T <sub>min</sub>	0°C	T <sub>max</sub>	+140°C	Thread	cylindrical	Thread sealed by a	FKM O-Ring in recess		Stainless steel AISI 316L
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for plug-in connection D	G	i	L1	S	Weight in [g]	Type	Order number	Price
4	G 1/8	5	21.5	13	6.5	908X4-4FF-1/8	383806	€5.90
4	G 1/4	7	22	17	12.5	908X4-4FF-1/4	383807	o. r.
6	G 1/8	5	22.5	13	7.3	908X4-6FF-1/8	383812	€5.95
6	G 1/4	7	23	17	16.7	908X4-6FF-1/4	383813	€4.59
8	G 1/8	5	24.5	13	8.2	908X4-8FF-1/8	383816	€3.80
8	G 1/4	7	25	17	16.1	908X4-8FF-1/4	383817	€4.95
10	G 1/4	7	29	17	15.5	908X4-10FF-1/4	383821	€5.66
10	G 3/8	8	29	19	23.4	908X4-10FF-3/8	383822	€7.82
12	G 3/8	8	31	19	26.3	908X4-12FF-3/8	383825	€8.97

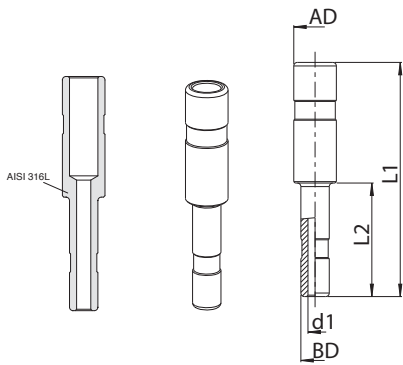
**Illustration**


Examples of possible combinations of ELSA push-in connectors to obtain rotatable connections.



\*X4M-... = fitting AVS-MIM-line

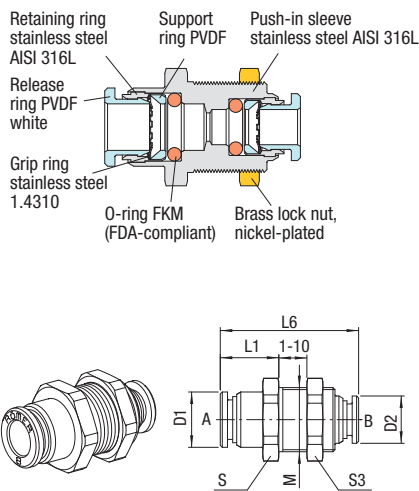
**Illustration**



**Straight Double Stem Connector**

Product group	<b>13</b>	PN 20	T <sub>min</sub> 0°C T <sub>max</sub> +120°C						NSF	Stainless steel AISI 316L
for Push-in connection OD	for Push-in connection BD	d1	L1	L2	Weight in [g]	Type	Order number	Price		
6	4	2	33	16	3.6	904X4-D6-D4	283852	o. r.		
6	6	4	34.5	-	5	904X4-D6	283853	o. r.		
8	8	6	37.5	-	5	904X4-D8	283854	o. r.		

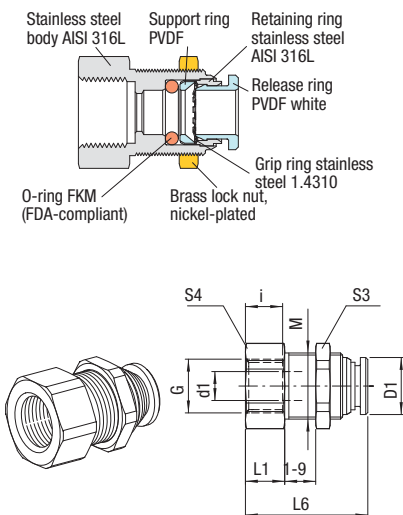
**Illustration**



**Straight Bulkhead Connector**

Product group	<b>13</b>	PN 20	T <sub>min</sub> 0°C T <sub>max</sub> +120°C						NSF	Stainless steel AISI 316L		
for tube OD	for tube BD	M	L1	L6	D1	D2	S	S3	Weight in [g]	Type	Order number	Price
4	4	M12x1	12.5	31	10	10	14	17	17.2	959X4-4FF	383429	o. r.
6	4	M14x1	12.5	31.5	12	10	17	17	22	959X4-6FF	383435	€14.62
6	6	M14x1	13.5	32.5	12	12	17	17	29.2	959X4-8FF	383437	o. r.

**Illustration**



**Straight Bulkhead Adapter - Female**

Product group	<b>13</b>	PN 20	T <sub>min</sub> 0°C T <sub>max</sub> +120°C	Thread cylindrical						NSF	Stainless steel AISI 316L		
for tube OD	G	M	L1	i	L6	d1	D1	S4	S3	Weight in [g]	Type	Order number	Price
4	G 1/8	M12x1	6.5	8	25.5	3	10	14	17	18.6	945X4-4FF-1/8	383606	o. r.
6	G 1/8	M14x1	6.5	8	25.5	5	12	17	17	24.2	945X4-6FF-1/8	383612	€11.97
6	G 1/4	M14x1	12	10.5	31	5	12	17	17	29.6	945X4-6FF-1/4	383613	o. r.
8	G 1/8	M16x1	7	8	27	7	14	19	19	33	945X4-8FF-1/8	383616	o. r.
8	G 1/4	M16x1	9.5	10.5	29.5	7	14	19	19	40.7	945X4-8FF-1/4	383617	o. r.

## AVS Rapid Push-on Fittings Stainless Steel AISI 316L (1.4404)


**Rapid version**

Operating pressure Technical vacuum up to maximum pressure as stated in the respective specification table under PN.

Temperature range: -40°C to +140°C (for restrictions see specification table)

**Application**

Rapid fittings are used with aggressive gaseous and liquid media, where elastomer seals are not resistant. With guide cone and cap nut these fittings are particularly suited to very harsh operating conditions.

**CHARACTERISTICS**
**BODY MATERIAL / SUITABILITY**

<b>Stainless steel AISI 316L</b>	<b>Corresponds to 1.4404</b> stainless steel. Suitable for many aggressive media. The FKM sealing ring is FDA-compliant and can be used in the food and pharmaceutical industries.
<b>Other materials</b>	see relevant products
<b>Approval</b>	NSF/ANSI 169

**PIPE / TUBE**

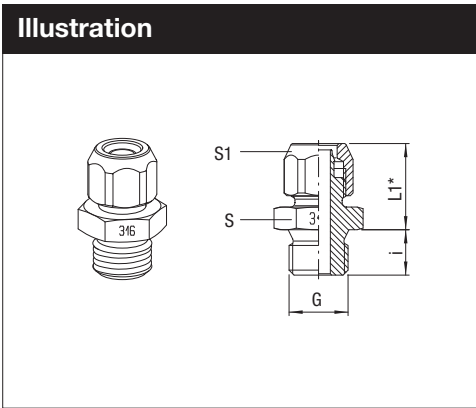
<b>Ø OD / ID [mm]</b>	6/4 + 8/6 + 10/8	12/10
<b>Perm. Tolerance OD</b>	± 0.1	± 0.15
<b>Perm. ID tolerance</b>	± 0.1	± 0.15
<b>Max. Wall thickness tolerance</b>	± 0.1 With very soft tubes, for example PVC tubes, variations in the outside diameter or wall thickness of up to + 5/10 are allowable. In case of doubt please ask.	
<b>Perm. grades</b>	Polyamide (PA), polyurethane (PU), polyethylene (PE), fabric reinforced PVC, fluorine polymer (FEP and PFA)	
<b>THREAD</b>	up to approx. 20 mm <sup>2</sup> /s	
<b>External thread</b>	"G" cylindrical thread: Whitworth pipe thread DIN ISO 228-1 G 1/8 up to G 1/2	
<b>External thread</b>	"R" conical thread: Whitworth pipe thread DIN 2999-1 and ISO 7/1 R 1/8 up to R 1/2. Designed for pairing with internal thread according to DIN ISO 228-1.	

**OPERATING PRESSURE / TEMPERATURE**

<b>Stainless steel Version</b>	<table border="1"> <tr> <td>PN</td> <td>T<sub>min</sub> -40°C</td> <td rowspan="2">Means that the fitting can be used up to the given nominal pressure PN within the specified temperature range "T". <b>Allowable operating pressure and operating temperature of pipe/tube must be observed!</b></td> </tr> <tr> <td>25</td> <td>T<sub>max</sub> +140°C</td> </tr> </table>	PN	T <sub>min</sub> -40°C	Means that the fitting can be used up to the given nominal pressure PN within the specified temperature range "T". <b>Allowable operating pressure and operating temperature of pipe/tube must be observed!</b>	25	T <sub>max</sub> +140°C
PN	T <sub>min</sub> -40°C	Means that the fitting can be used up to the given nominal pressure PN within the specified temperature range "T". <b>Allowable operating pressure and operating temperature of pipe/tube must be observed!</b>				
25	T <sub>max</sub> +140°C					

**THREAD SEAL**

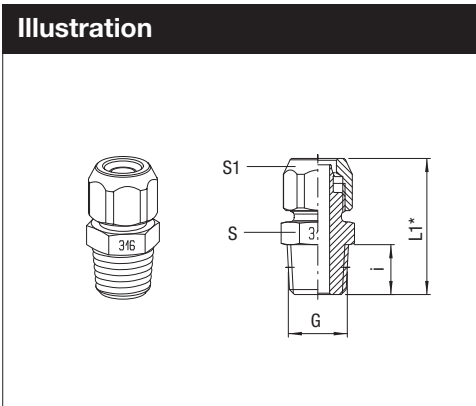
<b>Cylindrical threaded nipple</b>	Seal with sealing rings made of copper, fiber, aluminium, polyamide or hard PVC. Seal with chambered O-ring (FDA-compliant) on request		
<b>Tapered threaded nipple</b>	Seal with Teflon tape winding (FDA-compliant) on request		
<b>Straight, 90° elbow - and T-screw-in fittings</b>	<table border="1"> <tr> <td>not suitable for rotating or oscill. movements</td> <td>Some types of fittings rotate 360° in order to facilitate alignment during assembly or for compensating movement.</td> </tr> </table>	not suitable for rotating or oscill. movements	Some types of fittings rotate 360° in order to facilitate alignment during assembly or for compensating movement.
not suitable for rotating or oscill. movements	Some types of fittings rotate 360° in order to facilitate alignment during assembly or for compensating movement.		



**Straight Adapter - Male**

Product group **13** PN 25  $T_{min} -40^{\circ}C$   $T_{max} +140^{\circ}C$  Thread cylindrical Stainless steel AISI 316L

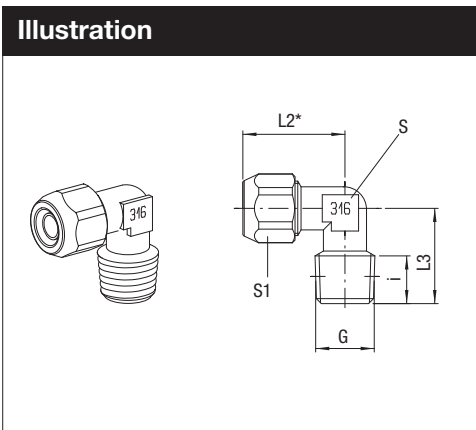
for tube D/d	G	i	L1*	S1	S	Weight in [g]	Type	Order number	Price
6/4	G 1/8	8	18.5	12	13	14.8	151X4-6/4-1/8	360014	€7.96
6/4	G 1/4	10	19	12	17	23.9	151X4-6/4-1/4	360015	€8.17
8/6	G 1/8	8	18.5	14	13	17.8	151X4-8/6-1/8	360020	€8.52
8/6	G 1/4	10	19	14	17	26.7	151X4-8/6-1/4	360021	€8.72
10/8	G 1/8	8	20	17	14	27.7	151X4-10/8-1/8	360029	€9.16
10/8	G 1/4	10	20.5	17	17	32.7	151X4-10/8-1/4	360030	€9.44
10/8	G 3/8	10	20.5	17	19	40.4	151X4-10/8-3/8	360031	€10.66
12/10	G 3/8	10	22	19	19	43.8	151X4-12/10-3/8	360043	€14.00
12/10	G 1/2	12	22.5	19	24	47.3	151X4-12/10-1/2	360044	€16.61



**Straight Adapter - Male**

Product group **13** PN 25  $T_{min} -40^{\circ}C$   $T_{max} +140^{\circ}C$  Thread conical Stainless steel AISI 316L

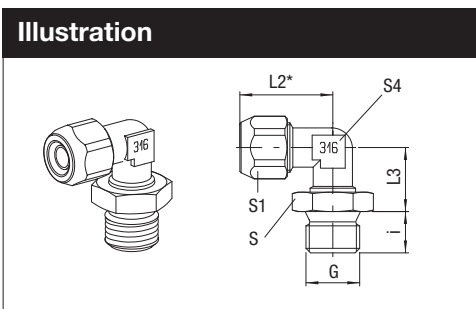
for tube D/d	G	i	L1*	S1	S	Weight in [g]	Type	Order number	Price
6/4	R 1/8	7.5	26	12	12	18.8	151X4-6/4-1/8K	360414	€7.96
6/4	R 1/4	11	30	12	14	21.8	151X4-6/4-1/4K	360415	€8.17
8/6	R 1/8	7.5	26	14	12	17.2	151X4-8/6-1/8K	360420	€8.52
8/6	R 1/4	11	30	14	14	25.1	151X4-8/6-1/4K	360421	€8.72
10/8	R 1/8	7.5	27.5	17	14	27.9	151X4-10/8-1/8K	360429	€9.16
10/8	R 1/4	11	31.5	17	14	30.4	151X4-10/8-1/4K	360430	€9.44
10/8	R 3/8	11.5	32	17	17	41	151X4-10/8-3/8K	360431	€10.66
12/10	R 3/8	11.5	33.5	19	17	43.9	151X4-12/10-3/8K	360443	€14.00
12/10	R 1/2	14	36.5	19	22	34.0	151X4-12/10-1/2K	360444	€16.61



**90° Elbow Adaptor - Male**

Product group **13** PN 25  $T_{min} -40^{\circ}C$   $T_{max} +140^{\circ}C$  Thread conical Stainless steel AISI 316L

for tube D/d	G	i	L2*	L3	S1	S	Weight in [g]	Type	Order number	Price
6/4	R 1/8	9	22.5	18.5	12	10	18.8	150X4-6/4-1/8K	361014	€19.03
6/4	R 1/4	10.5	22.5	21	12	10	21.8	150X4-6/4-1/4K	361015	€19.03
8/6	R 1/8	9	22.5	18.5	14	10	20.3	150X4-8/6-1/8K	361020	€19.39
8/6	R 1/4	10.5	22.5	21	14	10	22.9	150X4-8/6-1/4K	361021	€19.39
8/6	R 3/8	11	26.5	24.5	14	13	41.4	150X4-8/6-3/8K	361022	€22.78
10/8	R 1/8	9	24.5	18.5	17	10	27	150X4-10/8-1/8K	361029	€19.64
10/8	R 1/4	10.5	24.5	21	17	10	30.6	150X4-10/8-1/4K	361030	€19.64
10/8	R 3/8	11	27	24.5	17	13	46.2	150X4-10/8-3/8K	361031	€23.00
12/10	R 3/8	11.5	29	25	19	13	48.6	150X4-12/10-3/8K	361043	€24.58
12/10	R 1/2	14	30.5	29	19	17	66.1	150X4-12/10-1/2K	361044	€27.20



**90° Elbow Adaptor - Male - Positionable**

Product group **13** PN 16  $T_{min} 0^{\circ}C$   $T_{max} +140^{\circ}C$  Thread cylindrical Seal: FKM (FDA-compliant) not suitable for rotating or oscill. movement Stainless steel AISI 316L

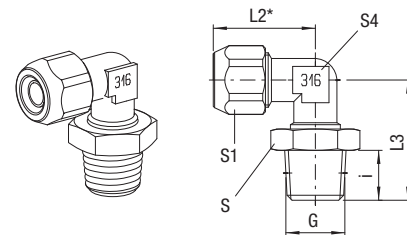
for tube D/d	G	i	L2*	L3	S1	S4	S	Weight in [g]	Type	Order number	Price
6/4	G 1/8	8	22.5	14	12	10	13	24.9	130X4-6/4-1/8FF	361114	€23.59
6/4	G 1/4	10	22.5	14.5	12	10	17	28.2	130X4-6/4-1/4FF	361115	€23.68
8/6	G 1/8	8	22.5	14	14	10	13	25.6	130X4-8/6-1/8FF	361120	€23.97
8/6	G 1/4	10	22.5	14.5	14	10	17	29.6	130X4-8/6-1/4FF	361121	€24.06
10/8	G 1/4	10	24	14.5	17	10	17	36.1	130X4-10/8-1/4FF	361130	€24.39

\* Approx. dimension with union nut tightened

**90° Elbow Adapter - Male - Positionable**

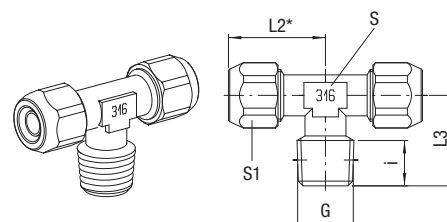
Product group	<b>13</b>	PN	16	T <sub>min</sub>	0°C	Thread	conical	Seal: FKM (FDA-compliant)	not suitable for rotating or oscill. movement		Stainless steel AISI 316L
				T <sub>max</sub>	+140°C						

for tube D/d	G	i	L2*	L3	S1	S4	S	Weight in [g]	Type	Order number	Price
6/4	R 1/8	7.5	22.5	21.5	12	10	13	24.1	130X4-6/4-1/8KFF	361214	€23.59
6/4	R 1/4	11	22.5	25.5	12	10	17	28.2	130X4-6/4-1/4KFF	361215	€23.68
8/6	R 1/8	7.5	22.5	21.5	14	10	13	25.2	130X4-8/6-1/8KFF	361220	€23.97
8/6	R 1/4	11	22.5	25.5	14	10	17	29.7	130X4-8/6-1/4KFF	361221	€24.06
10/8	R 1/4	11	24	25.5	17	10	17	35.5	130X4-10/8-1/4KFF	361230	€24.39

**Illustration**

**T-Adapter - Male**

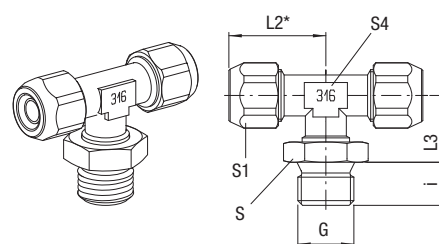
Product group	<b>13</b>	PN	25	T <sub>min</sub>	-40°C	Thread	conical				Stainless steel AISI 316L
				T <sub>max</sub>	+140°C						

for tube D/d	G	i	L2*	L3	S1	S	Weight in [g]	Type	Order number	Price
6/4	R 1/8	9	22.5	18.5	12	10	30.2	141X4-6/4-1/8K	361414	€29.74
6/4	R 1/4	10.5	22.5	21	12	10	33.2	141X4-6/4-1/4K	361415	€29.74
8/6	R 1/8	9	22.5	18.5	14	10	32.2	141X4-8/6-1/8K	361420	€30.51
8/6	R 1/4	10.5	22.5	21	14	10	35.2	141X4-8/6-1/4K	361421	€30.51
10/8	R 1/8	9	25	18.5	17	10	46.9	141X4-10/8-1/8K	361429	€30.91
10/8	R 1/4	10.5	25	21	17	10	50.8	141X4-10/8-1/4K	361430	€30.91
10/8	R 3/8	11.5	27	25	17	13	69.5	141X4-10/8-3/8K	361431	€35.97
12/10	R 3/8	11.5	29	25	19	13	74.2	141X4-12/10-3/8K	361443	€38.38
12/10	R 1/2	14	30.5	29	19	17	106	141X4-12/10-1/2K	361444	€42.91

**Illustration**

**T-Adapter - Male - Positionable**

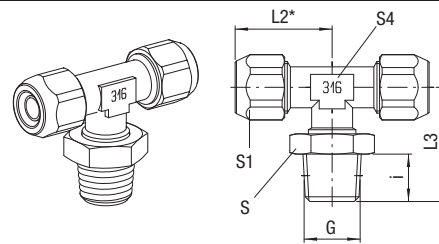
Product group	<b>13</b>	PN	16	T <sub>min</sub>	0°C	Thread	cylindrical	Seal: FKM (FDA-compliant)	not suitable for rotating or oscill. movement		Stainless steel AISI 316L
				T <sub>max</sub>	+140°C						

for tube D/d	G	i	L2*	L3	S1	S4	S	Weight in [g]	Type	Order number	Price
6/4	G 1/8	8	22.5	14	12	10	13	35.5	121X4-6/4-1/8FF	361514	€34.31
6/4	G 1/4	10	22.5	14.5	12	10	17	38.3	121X4-6/4-1/4FF	361515	€34.50
8/6	G 1/8	8	22.5	14	14	10	13	37.4	121X4-8/6-1/8FF	361520	€35.05
8/6	G 1/4	10	22.5	14.5	14	10	17	41.4	121X4-8/6-1/4FF	361521	€35.16
10/8	G 1/4	10	24	14.5	17	10	17	53.7	121X4-10/8-1/4FF	361530	€35.65

**Illustration**

**T-Adapter - Male - Positionable**

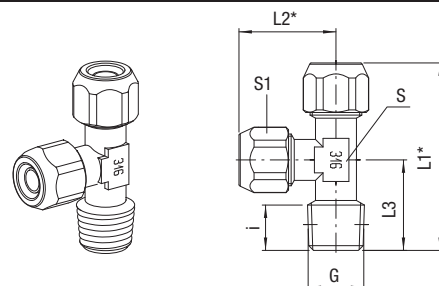
Product group	<b>13</b>	PN	16	T <sub>min</sub>	0°C	Thread	conical	Seal: FKM (FDA-compliant)	not suitable for rotating or oscill. movement		Stainless steel AISI 316L
				T <sub>max</sub>	+140°C						

for tube D/d	G	i	L2*	L3	S1	S4	S	Weight in [g]	Type	Order number	Price
6/4	R 1/8	7.5	22.5	21.5	12	10	13	35.4	121X4-6/4-1/8KFF	361614	€34.31
6/4	R 1/4	11	22.5	25.5	12	10	17	39.6	121X4-6/4-1/4KFF	361615	€34.50
8/6	R 1/8	7.5	22.5	21.5	14	10	13	37.5	121X4-8/6-1/8KFF	361620	€35.05
8/6	R 1/4	11	22.5	25.5	14	10	17	42.1	121X4-8/6-1/4KFF	361621	€35.16
10/8	R 1/4	11	24	25.5	17	10	17	53.1	121X4-10/8-1/4KFF	361630	€35.65

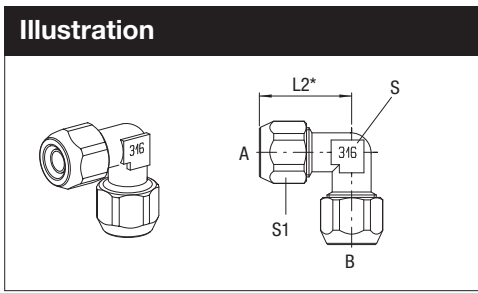
**Illustration**

**Side T-Adapter - Male**

Product group	<b>13</b>	PN	25	T <sub>min</sub>	-40°C	Thread	conical				Stainless steel AISI 316L
				T <sub>max</sub>	+140°C						

for tube D/d	G	i	L1*	L2*	L3	S1	S	Weight in [g]	Type	Order number	Price
6/4	R 1/8	9	41	22.5	18.5	12	10	30	142X4-6/4-1/8K	361714	€29.74
6/4	R 1/4	10.5	43.5	22.5	21	12	10	32.8	142X4-6/4-1/4K	361715	€29.74
8/6	R 1/8	9	41	22.5	18.5	14	10	32.1	142X4-8/6-1/8K	361720	€30.51
8/6	R 1/4	10.5	43.5	22.5	21	14	10	34.8	142X4-8/6-1/4K	361721	€30.51
10/8	R 1/8	9	43.5	25	18.5	17	10	44.4	142X4-10/8-1/8K	361729	€30.91
10/8	R 1/4	10.5	46	25	21	17	10	55.4	142X4-10/8-1/4K	361730	€30.91
10/8	R 3/8	11.5	52	27	25	17	13	68	142X4-10/8-3/8K	361731	€35.97

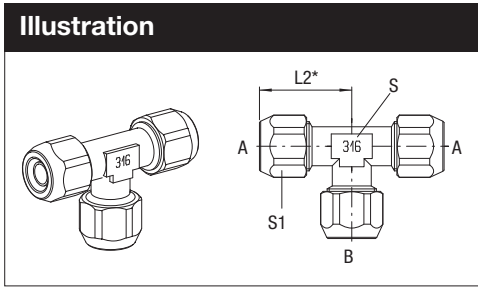
**Illustration**


\* Approx. dimension with union nut tightened



**90° Elbow Connector**

Product group	<b>13</b>	PN 25	T <sub>min</sub> -40°C T <sub>max</sub> +140°C			NSF	Stainless steel AISI 316L	
for pipe A D/d	for pipe B D/d	L2*	S1	S	Weight in [g]	Type	Order number	Price
6/4	6/4	22.5	12	10	26.2	155X4-6/4	362135	€24.61
8/6	8/6	22.5	14	10	27.8	155X4-8/6	362137	€25.45
10/8	10/8	25	17	10	41.4	155X4-10/8	362140	€25.86
12/10	12/10	29	19	13	60	155X4-12/10	362144	€28.56



**T-Connector**

Product group	<b>13</b>	PN 25	T <sub>min</sub> -40°C T <sub>max</sub> +140°C			NSF	Stainless steel AISI 316L	
for pipe A D/d	for pipe B D/d	L2*	S1	S	Weight in [g]	Type	Order number	Price
6/4	6/4	22.5	12	10	37	154X4-6/4	362335	€34.76
8/6	8/6	22.5	14	10	38.9	154X4-8/6	362337	€36.03
10/8	10/8	25	17	10	61	154X4-10/8	362340	€36.70
12/10	12/10	29	19	13	115	154X4-12/10	362344	€41.71

\* Approx. dimension with union nut tightened



## AVS Fitting Accessories AISI 316L (1.4404)


**Stainless steel version**

Operating pressure Technical vacuum up to maximum pressure as stated in the respective specification table under PN.

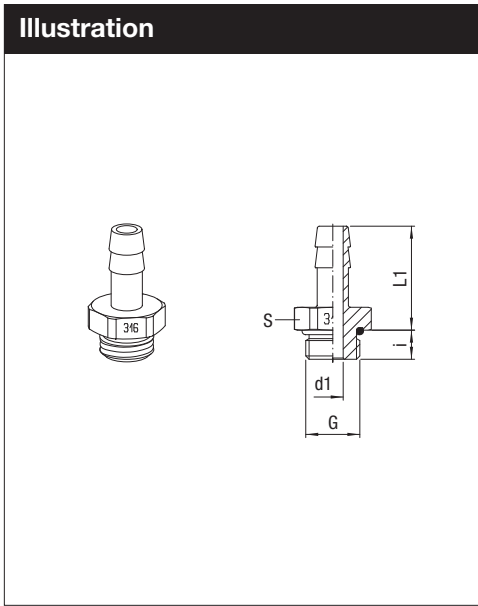
Temperature range: -40°C to +140°C (for restrictions see specification table)

**Application**

These connectors are used in particular for aggressive gaseous and liquid media under harsh operating conditions. These plug-in connectors are equipped with FDA-compliant FKM sealing rings, on request they are available with FDA-compliant and KTW-approved EPDM sealing rings.

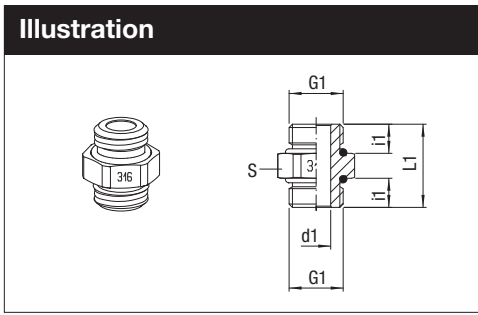
**CHARACTERISTICS**
**BODY MATERIAL / SUITABILITY**

<b>Stainless steel AISI 316L</b>	<b>Corresponds to 1.4404</b> stainless steel. Suitable for many aggressive media, in particular at higher pressures. The FKM seal is FDA-compliant and can be used in the food and pharmaceutical industries.							
<b>Approval</b>	NSF/ANSI 169							
<b>THREAD</b>								
<b>External thread</b>	"G" cylindrical thread: Whitworth pipe thread DIN ISO 228-1 G 1/8-G 1/2							
<b>External thread</b>	"R" conical thread: Whitworth pipe thread DIN 2999-1 and ISO 7/1 R 1/8 up to R 1/2. Designed so it can be paired with internal thread according to DIN ISO 228-1.							
<b>Internal thread</b>	"G" cylindrical thread: Whitworth pipe thread DIN ISO 228-1 G 1/8 up to G 1/2							
<b>OPERATING PRESSURE / TEMPERATURE</b>								
<b>Fittings</b>	<table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>PN</td> <td>T<sub>min</sub></td> <td>-40°C</td> </tr> <tr> <td>50</td> <td>T<sub>max</sub></td> <td>+140°C</td> </tr> </table>	PN	T <sub>min</sub>	-40°C	50	T <sub>max</sub>	+140°C	Means that the fitting can be used up to the shown nominal pressure PN in the specified temperature range "T".
PN	T <sub>min</sub>	-40°C						
50	T <sub>max</sub>	+140°C						
<b>Allowable operating pressure and operating temperature of pipe / tube must be complied with.</b>								
<b>THREAD SEAL</b>								
<b>Cylindrical threaded nipple</b>	Sealing of FKM sealing rings (FDA-compliant)							
<b>Tapered threaded nipple</b>	Seal with Teflon tape winding (FDA-compliant) on request							



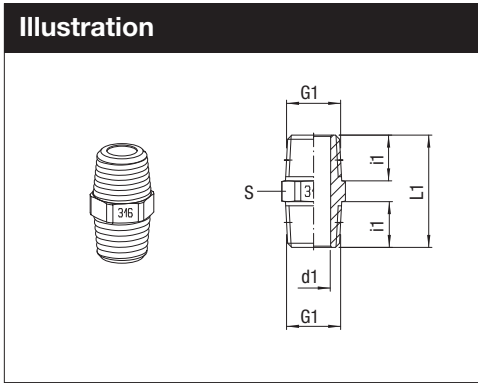
**Hose Tail Adapter**

Product group	<b>13</b>	PN 25	T <sub>min</sub> -20°C T <sub>max</sub> +140°C	Thread cylindrical	Seal FKM (FDA-compliant)	NSF	Stainless steel AISI 316L		
for tube LW	G	i	L1	d1	S	Weight in [g]	Type	Order number	Price
5-6	G 1/8	5	24	4	13	10	260X4-7-1/8FF	356561	€5.15
5-6	G 1/4	7	24.5	4	17	34.7	260X4-7-1/4FF	356562	€6.37
6-7	G 1/8	5	24	5	13	18.7	260X4-8-1/8FF	356563	o. r.
6-7	G 1/4	7	24.5	5	17	34.7	260X4-8-1/4FF	356564	€6.37
7-8	G 1/8	5	24	6	13	18.7	260X4-9-1/8FF	356565	€5.15
7-8	G 1/4	7	24.5	6	17	34.7	260X4-9-1/4FF	356566	€6.37
7-8	G 3/8	8	24.5	6	19	44.9	260X4-9-3/8FF	356567	€7.56
9-10	G 1/4	7	24.5	7	17	34.7	260X4-10-1/4FF	356568	€6.37
10-11	G 1/4	7	24.5	8	17	20	260X4-12-1/4FF	356570	€6.37
10-11	G 3/8	8	24.5	9	19	44.9	260X4-12-3/8FF	356571	€7.56
10-11	G 1/2	9	25	9	24	74.4	260X4-12-1/2FF	356572	o. r.
12-13	G 1/4	7	24.5	8	17	26	260X4-14-1/4FF	356573	€6.57
12-13	G 3/8	8	24.5	11	19	44.9	260X4-14-3/8FF	356574	€7.56
12-13	G 1/2	9	25	11	24	74.4	260X4-14-1/2FF	356575	o. r.
15-16	G 3/8	8	29	11	19	50.4	260X4-17-3/8FF	356576	€7.97
15-16	G 1/2	9	29.5	14	24	84	260X4-17-1/2FF	356577	o. r.
18-19	G 1/2	9	29.5	15	24	53	260X4-20-1/2FF	356578	€11.50



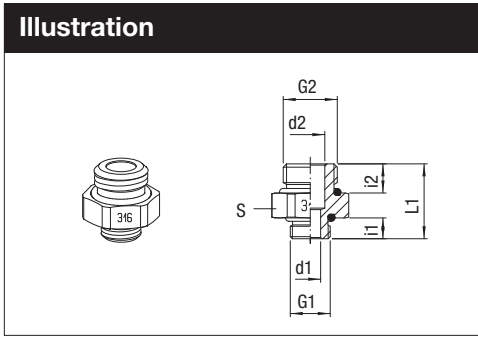
**Double Nipple**

Product group	<b>13</b>	PN 25	T <sub>min</sub> -20°C T <sub>max</sub> +140°C	Thread cylindrical	Seal FKM (FDA-compliant)	NSF	Stainless steel AISI 316L	
G1	i1	L1	d1	S	Weight in [g]	Type	Order number	Price
G 1/8	5	15.5	6	13	10.7	250X4-1/8FF	356603	o. r.
G 1/4	7	20	8	17	23	250X4-1/4FF	356604	o. r.
G 3/8	8	22	11	19	31.2	250X4-3/8FF	356605	o. r.
G 1/2	9	24.5	14	24	55	250X4-1/2FF	356606	o. r.



**Double Nipple**

Product group	<b>13</b>	PN 50	T <sub>min</sub> -40°C T <sub>max</sub> +140°C	Thread conical	Seal FKM (FDA-compliant)	NSF	Stainless steel AISI 316L	
G1	i1	L1	d1	S	Weight in [g]	Type	Order number	Price
R 1/8	7.5	19.5	5.5	10	7	250X4-1/8K	256621	€3.94
R 1/4	11	27	8	14	15.8	250X4-1/4K	256622	€4.92
R 3/8	11.5	28	11	17	31	250X4-3/8K	256623	o. r.
R 1/2	14	33.5	15	22	61.7	250X4-1/2K	256624	€9.23



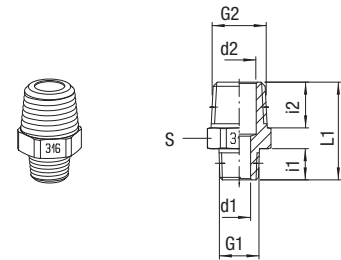
**Double Reducing Nipple**

Product group	<b>13</b>	PN 25	T <sub>min</sub> -20°C T <sub>max</sub> +140°C	Thread cylindrical	Seal FKM (FDA-compliant)	NSF	Stainless steel AISI 316L				
G1	G2	i1	i2	L1	d1	d2	S	Weight in [g]	Type	Order number	Price
G 1/8	G 1/4	5	7	18	6	8	17	20.9	251X4-1/8-1/4FF	356652	o. r.
G 1/8	G 3/8	5	8	19	6	11	19	27.5	251X4-1/8-3/8FF	356653	o. r.
G 1/8	G 1/2	5	9	20.5	6	14	24	46.7	251X4-1/8-1/2FF	356654	o. r.
G 1/4	G 3/8	7	8	21	8	11	19	29.9	251X4-1/4-3/8FF	356655	o. r.
G 1/4	G 1/2	7	9	22.5	8	14	24	50.7	251X4-1/4-1/2FF	356656	o. r.
G 3/8	G 1/2	8	9	23.5	11	14	24	53	251X4-3/8-1/2FF	356657	o. r.

**Double Reducing Nipple**

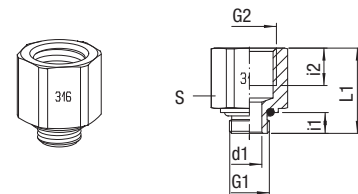
Product group	<b>13</b>	PN	50	T <sub>min</sub>	-40°C	T <sub>max</sub>	+140°C	Thread "R"	conical		Stainless steel	AISI 316L
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G1	G2	i1	i2	L1	d1	d2	S	Weight in [g]	Type	Order number	Price
R 1/8	R 1/4	7.5	11	23.5	5.5	8	14	13.2	251X4-1/8K-1/4K	256671	€4.72
R 1/8	R 3/8	7.5	11.5	24	5.5	11	17	19.1	251X4-1/8K-3/8K	256672	€5.59
R 1/8	R 1/2	7.5	14	27	5.5	15	22	50.4	251X4-1/8K-1/2K	256673	€7.57
R 1/4	R 3/8	11	11.5	27.5	8	11	17	21.3	251X4-1/4K-3/8K	256674	€5.88
R 1/4	R 1/2	11	14	30.5	8	15	22	56.7	251X4-1/4K-1/2K	256675	o. r.
R 3/8	R 1/2	11.5	14	31	11	15	22	57.4	251X4-3/8K-1/2K	256676	o. r.

**Illustration**

**Reducer**

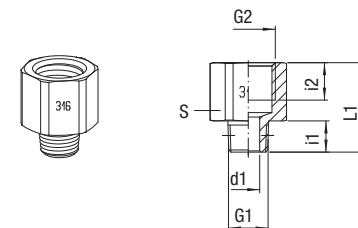
Product group	<b>13</b>	PN	25	T <sub>min</sub>	-20°C	T <sub>max</sub>	+140°C	Thread "G"	cylindrical	Seal FKM	(FDA-compliant)		Stainless steel	AISI 316L
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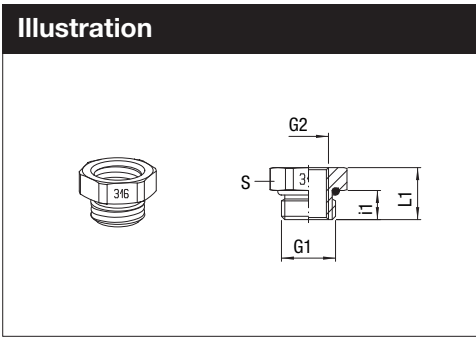
G1	G2	i1	i2	L1	d1	S	Weight in [g]	Type	Order number	Price
G 1/8	G 1/8	5	6.5	17	6	13	8.9	252X4-1/8FF-1/8	356703	o. r.
G 1/8	G 1/4	5	9	20.5	6	17	23.4	252X4-1/8FF-1/4	356704	o. r.
G 1/8	G 3/8	5	9.5	21.5	6	19	18	252X4-1/8FF-3/8	356705	o. r.
G 1/8	G 1/2	5	12.5	26.5	6	24	58.8	252X4-1/8FF-1/2	356706	o. r.
G 1/4	G 1/4	7	9	21.5	8	17	45.6	252X4-1/4FF-1/4	356707	o. r.
G 1/4	G 3/8	7	9.5	23	8	19	32.6	252X4-1/4FF-3/8	356708	o. r.
G 1/4	G 1/2	7	12.5	27.5	8	24	61.3	252X4-1/4FF-1/2	356709	o. r.
G 3/8	G 3/8	8	9.5	23	11	19	32.3	252X4-3/8FF-3/8	356710	o. r.
G 3/8	G 1/2	8	12.5	28	11	24	61.9	252X4-3/8FF-1/2	356711	o. r.
G 1/2	G 1/2	9	12.5	28.5	14	24	63.2	252X4-1/2FF-1/2	356712	o. r.

**Illustration**

**Reducer**

Product group	<b>13</b>	PN	50	T <sub>min</sub>	-40°C	T <sub>max</sub>	+140°C	Thread "R"	conical	Thread "G"	zylindrical		Stainless steel	AISI 316L
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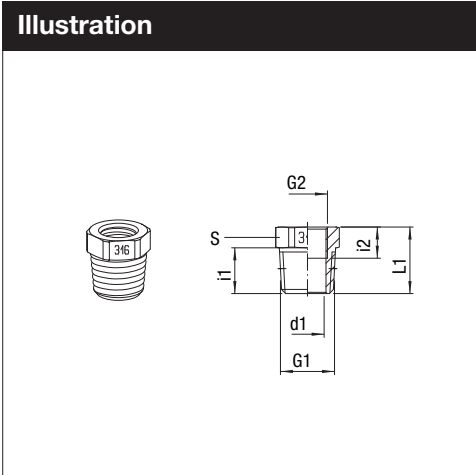
G1	G2	i1	i2	L1	d1	S	Weight in [g]	Type	Order number	Price
R 1/8	G 1/8	7.5	6.5	18	5.5	13	9.2	252X4-1/8K-1/8	256751	€4.64
R 1/8	G 1/4	7.5	9	21.5	5.5	17	17.4	252X4-1/8K-1/4	256752	€5.87
R 1/8	G 3/8	7.5	9.5	23	5.5	19	18.7	252X4-1/8K-3/8	256753	€7.07
R 1/8	G 1/2	7.5	12.5	27.5	5.5	24	61.3	252X4-1/8K-1/2	256754	o. r.
R 1/4	G 1/4	11	9	25	8	17	20.4	252X4-1/4K-1/4	256755	€6.15
R 1/4	G 3/8	11	9.5	26	8	19	20.2	252X4-1/4K-3/8	256756	€7.38
R 1/4	G 1/2	11	12.5	30.5	8	24	67.6	252X4-1/4K-1/2	256757	o. r.
R 3/8	G 3/8	11.5	9.5	26.5	11	19	23.4	252X4-3/8K-3/8	256758	€7.60
R 3/8	G 1/2	11.5	12.5	31	11	24	68.4	252X4-3/8K-1/2	256759	o. r.
R 1/2	G 1/2	14	12.5	33.5	15	24	73.5	252X4-1/2K-1/2	256760	o. r.

**Illustration**




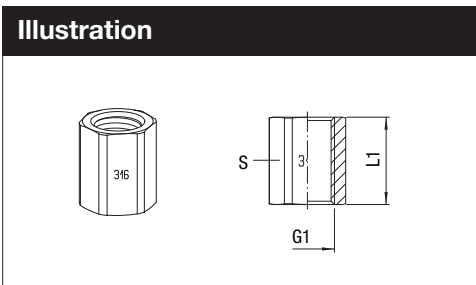
**Reducer**

Product group	<b>13</b>	PN	25	T <sub>min</sub>	-20°C	T <sub>max</sub>	+140°C	Thread	cylindrical	Seal FKM	(FDA-compliant)		Stainless steel	AISI 316L
G1	G2	i1	L1	S	Weight in [g]	Type	Order number	Price						
G 1/4	G 1/8	7	12.5	17	15.3	253X4-1/4FF-1/8	356802	€5.04						
G 3/8	G 1/8	8	13.5	19	20.3	253X4-3/8FF-1/8	356803	o. r.						
G 1/2	G 1/8	9	15.5	24	36.5	253X4-1/2FF-1/8	356804	o. r.						
G 3/8	G 1/4	8	13.5	19	20.3	253X4-3/8FF-1/4	356805	€5.97						
G 1/2	G 1/4	9	15.5	24	36.5	253X4-1/2FF-1/4	356806	o. r.						
G 1/2	G 3/8	9	15.5	24	36.5	253X4-1/2FF-3/8	356807	o. r.						



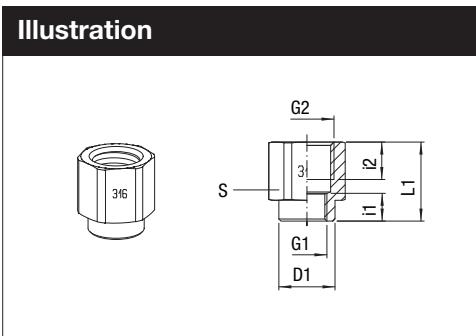
**Reducer**

Product group	<b>13</b>	PN	50	T <sub>min</sub>	-40°C	T <sub>max</sub>	+140°C	Thread "R" conical,	Thread "G" cylindrical		Stainless steel	AISI 316L
G1	G2	i1	i2	L1	d1	S	Weight in [g]	Type	Order number	Price		
R 1/4	G 1/8	11	7.5	16	9	14	8.6	253X4-1/4K-1/8	256852	€4.52		
R 3/8	G 1/8	11.5	7.5	16.5	9	17	18.4	253X4-3/8K-1/8	256853	€5.20		
R 1/2	G 1/8	14	7.5	19.5	9	22	37.7	253X4-1/2K-1/8	256854	€6.81		
R 3/8	G 1/4	11.5	9	16.5	9	17	13.4	253X4-3/8K-1/4	256855	€5.51		
R 1/2	G 1/4	14	11.5	19.5	12	22	37.7	253X4-1/2K-1/4	256856	o. r.		
R 1/2	G 3/8	14	11.5	19.5	15.5	22	37.7	253X4-1/2K-3/8	256857	o. r.		



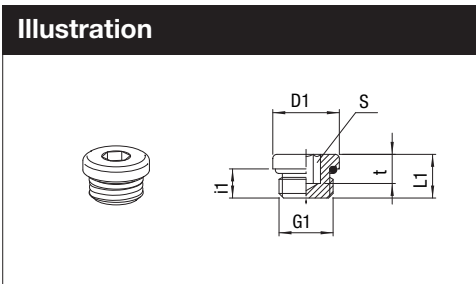
**Socket**

Product group	<b>13</b>	PN	50	T <sub>min</sub>	-40°C	T <sub>max</sub>	+140°C	Thread	cylindrical		Stainless steel	AISI 316L
G1	L1	S	Weight in [g]	Type	Order number	Price						
G 1/8	15	13	8.9	254X4-1/8	256902	€4.33						
G 1/4	21	17	20.4	254X4-1/4	256903	€5.96						
G 3/8	23	19	32.6	254X4-3/8	256904	€9.10						
G 1/2	30	24	66.1	254X4-1/2	256905	o. r.						



**Reducing Socket**

Product group	<b>13</b>	PN	50	T <sub>min</sub>	-40°C	T <sub>max</sub>	+140°C	Thread	cylindrical		Stainless steel	AISI 316L
G1	G2	i1	i2	L1	D1	S	Weight in [g]	Type	Order number	Price		
G 1/8	G 1/4	7	9	19	13.5	17	22	255X4-1/8-1/4	256922	o. r.		
G 1/8	G 3/8	7	9.5	20.5	13.5	19	29.2	255X4-1/8-3/8	256923	€7.93		
G 1/8	G 1/2	7	12.5	25	13.5	24	56	255X4-1/8-1/2	256924	o. r.		
G 1/4	G 3/8	9	9.5	22	17	19	31.2	255X4-1/4-3/8	256925	€8.38		
G 1/4	G 1/2	9	12.5	27	17	24	60	255X4-1/4-1/2	256926	o. r.		
G 3/8	G 1/2	9.5	12.5	27	21	24	60	255X4-3/8-1/2	256927	o. r.		



**Blind Plug**

Product group	<b>13</b>	PN	25	T <sub>min</sub>	-20°C	T <sub>max</sub>	+140°C	Thread	cylindrical	Seal FKM	(FDA-compliant)		Stainless steel	AISI 316L
G1	i1	L1	D1	t	S	Weight in [g]	Type	Order number	Price					
G 1/8	5	8	13	4	5	4.6	262X4-1/8FF	356522	€3.73					
G 1/4	7	10.5	16	5.5	6	9.2	262X4-1/4FF	356526	€4.45					
G 3/8	8	11.5	20	6	8	16.2	262X4-3/8FF	356529	€4.77					
G 1/2	9	13	25	6	10	29	262X4-1/2FF	356532	€6.90					



**§1 - General Provisions**

(1) All of our deliveries, services and offers shall be made on the basis of these terms and conditions notwithstanding the fact that they may not have been expressly referred to during negotiations. We will not accept any differing terms and conditions notwithstanding that we may not have expressly rejected them nor by means of our referring to correspondence with the contractual partner in which reference is made to the contractual partner's terms and conditions. Our terms and conditions shall also apply to future business relationships in respect of contracts with tradesmen, legal entities under public law and special public law funds notwithstanding their not having been agreed afresh. Our terms and conditions shall be deemed to have been accepted from no later than the time at which the goods are accepted.

(2) Any conditions of the purchaser which are contrary to or which deviate from our terms and conditions shall not apply unless we have expressly consented in writing to their applying.

**§2 - Offer**

(1) Our sales assistants are not authorised to make verbal supplemental agreements nor to give oral assurances that go beyond the scope of the written contract. All provisions agreed under this contract are recorded within the written contractual documentation. There shall be no supplemental verbal agreements.

(2) Delivery dates are estimates only and are without obligation unless we have expressly agreed to their being binding. Statements relating to the goods to be supplied (e.g. technical data, tolerances, measurements, weight specifications etc.) and their illustration shall be for descriptive and identification purposes only and shall not be binding unless express confirmation in writing is given by us in this respect. We reserve the right to make technical changes or changes to the design of the goods to be supplied provided such changes are customary in the trade and provided they do not compromise the customer to an unreasonable extent and do not affect the goods' fitness for use.

(3) Our offers are subject to change until the contract is concluded.

(4) We reserve all ownership and copyrights in design drawings, samples, price quotations and similar business objects, whether tangible or intangible. They must be treated with the utmost confidence at all times. They must not be made available to any third party without our consent. In the event of any breach of these duties the purchaser shall be liable to us in full in accordance with legal provisions. Advertising using our name as a reference and similar promotional activities shall be prohibited unless our prior approval is sought.

**§3 - Prices**

(1) Our prices are quoted ex works exclusive of shipment and exclusive of packaging, both of which will be invoiced separately. Unloading and storage of the goods are the purchaser's responsibility. Value added tax as chargeable at the date of the invoice will be added to our prices. The cost of any transport insurance or similar insurance that has been arranged shall be borne by the purchaser unless otherwise agreed.

(2) Each delivery may be invoiced separately in the event of deliveries being made in parts.

(3) If on any given delivery date, which is at least four months after the date on which the contract was concluded, any changes should occur to the basis on which prices have been established (e.g. an increase in the price charged for raw materials, materials, wages, transportation or storage), we shall reserve the right to adapt our prices accordingly after informing the purchaser of this change, whereby the individual cost elements and their increase shall be given a fair weighting in determining any new prices. In the event that individual cost elements should increase whilst others decrease, this shall also be taken into consideration when determining the new price.

(4) Our prices as applicable on the date of delivery shall apply in the event that prices are not agreed at the time the contract is concluded.

**§4 - Conditions of Payment**

(1) Unless the confirmation of order (or alternatively the invoice) states otherwise, payment of the net purchase price shall be due (without deductions) within 30 days from the date of invoice.

(2) We reserve the right to charge interest on late payments at 9% above the base rate should the purchaser fall into arrears in respect of payment. We may at all times provide evidence of a higher rate loss due to interest and may charge the purchaser accordingly. In the event of any default in payment we shall be entitled to withdraw any allowances, discounts or other concessions granted. We shall have the right to demand that future deliveries be made on condition that payment be made in advance.

(3) Breach of any of the conditions for payment, default or circumstances which may undermine the purchaser's creditworthiness shall result in the immediate acceleration of all claims.

(4) The purchaser shall have no rights of set-off unless the purchaser's counterclaims have been established in a legally binding manner, or admitted by us or they are indisputed.

(5) The purchaser may exercise a right of retention insofar as the purchaser's counterclaim is based on the same contractual relationship or the counterclaim has been accepted, decided by a court of law or is pending judgement.

(6) We are not obliged to accept bills of exchange or cheques. Credit given on either basis shall in all instances be deemed to be subject to redemption (by payment, not in lieu of payment); it shall be credited to the purchase less the discount charged to us on transfer, less stamp duty and bank charges and also less collection fees where applicable.

(7) We reserve the right to raise other contractual or legal claims in the event of default.

**§5 - Delivery Period and Barriers to Delivery**

(1) The delivery period shall commence at the time at which the confirmation of order is dispatched, but no sooner than the purchaser has provided the relevant documentation, authorisation and clearances required to be provided, made a down-payment and clarified all technical issues.

(2) The delivery period shall be deemed to have been observed if the goods to be delivered have left the factory before expiry of the delivery period, or the purchaser has been notified that the goods are ready to be dispatched.

(3) In the event of any unforeseen circumstances which are not of our volition and which we are unable to avert despite reasonable efforts in the circumstances - regardless of whether they shall occur on our part or on the part of a supplier - such as force majeure (war, fire or natural disasters) or delays in the supply of significant raw materials etc. - we shall be entitled to rescind the contract in part or in full or to extend the delivery period for the duration of the hindrance. We shall be entitled to the same rights in the case of any strike or lockout on our part or on the part of our suppliers. We will notify the purchaser without delay of any such circumstances.

(4) Delivery is subject to our receiving the correct and timely supplies ourselves. The purchaser will be notified of any delays. Should our suppliers fail to supply us correctly or should they fail to supply us on time, through no fault of our own, then the delivery period will be postponed by an appropriate period. Alternatively we may in this instance elect to rescind the contract in respect of such goods as have not been delivered. Insofar as permitted under competition law we will assign to the purchaser any claims we may have against suppliers in respect of any delivery that has not been made as agreed under the contract. The purchaser shall not have any other rights to claim damages or reimbursement of expenses.

(5) In the case of any delay in delivery the purchaser shall have a right to rescind the contract provided that a reasonable period of grace has passed in which delivery has not occurred; the purchaser shall be entitled to exercise this right without having granted a period of grace if it becomes impossible for us to provide the relevant goods. Without prejudice to clause 6 and §9, neither of which are intended to reverse the burden of proof, all claims for damages (including any consequential loss) shall be excluded; the same shall apply in respect of any claim for reimbursement of expenses. If a fixed deal has been agreed then we shall be liable in accordance with the applicable laws; the same applies in the event of a purchaser being able to assert that its interest in the contract being fulfilled has fallen away as a result of the delay for which we are responsible.

(6) If shipment of goods is delayed at the purchaser's behest, the purchaser will be charged for the cost of storage from a period commencing one month after the date on which the purchaser was notified that the goods were ready to be dispatched.

**§6 - Passing of Risk**

(1) In the event that the purchaser is obliged to collect the goods, risk shall pass to the purchaser at the time the goods are singled out and made available as agreed under the contract. The same shall apply if the seller is using a carrier to convey the goods to the purchaser, in which case risk shall pass when the goods are handed to the courier. If it is the seller's duty to deliver the goods to the purchaser then risk shall pass when the goods leave the seller's factory premises. The same shall apply in the event of any default in acceptance.

(2) Without prejudice to the purchaser's rights arising from §8 and §9, goods delivered must be accepted by the purchaser notwithstanding any immaterial defects in the goods. Delivery in parts shall be permissible provided it is reasonable to expect the purchaser to accept delivery in parts.

**§7 - Retention of Title**

(1) We shall reserve title to all goods delivered until such a time as the purchaser has paid all current and future debts resulting from the business relationship. This right of retention of title shall also apply to spare or replacement parts such as motors, control units etc. notwithstanding that such parts may have been built in already, since this does not mean that they have become major components within the meaning of §93 of the German Civil Code (BGB).

(2) We may retract the goods if the purchaser is in breach of the contract, particularly in relation to payment default. Such retraction of goods shall not constitute rescission of the contract unless we have granted a period of grace which has passed without the purchaser fulfilling its obligation and we have expressly indicated that we intend to rescind the contract. Any costs incurred by us in retracting the goods (transportation costs, in particular) shall be at the purchaser's expense. We further have the right to prohibit the purchaser from reselling goods or from processing goods delivered the title of which we have retained, and to recall the direct debit mandate (§7V). The purchaser may not request the delivery of goods that have been retracted where no express declaration of rescission was made until such time as the purchase price and all costs have been paid in full.

(3) The purchaser must handle the goods with care (and this includes an obligation to carry out inspections and maintenance).

(4) The purchaser may not mortgage, give as security or assign the goods delivered nor make any claims in lieu/a transfer of claims. In the event of the goods being mortgaged or of any other third party intervention, the purchaser must notify us in writing without delay so that we may commence proceedings in accordance with §771 of the German Code of Civil Procedure (ZPO). The costs of any such legal action under §771 of German Code of Civil Procedure (ZPO) that may remain despite our winning the case shall be borne by the purchaser.

(5) The purchaser may resell, process or combine the purchased goods in the usual course of business; however, the purchaser agrees to assign to us all claims resulting from any resale, processing, merging or any other legal grounds (insurance or illegitimate acts, in particular) up to the value of the final amount invoiced (including value-added tax), along with any ancillary rights. Should any delivered goods continue to be part-owned by us by virtue of our having retained title to them, then assignment of any claims shall be in proportion to our share in the goods' ownership. Should the delivered goods be sold on jointly with any third party goods that are not owned by the purchaser then the resulting claims shall be assigned to us in such a proportion as equates to the final invoice value of our goods compared with the final invoice amount of the third party goods. If the assigned claims are to be included in any running invoice/account? then the purchaser hereby agrees to assign to us an appropriate proportion of the balance (including the final balance) from the open account; should interim invoices be drawn up and should it have been agreed that the amounts be carried forward then any claim resulting from the interim invoice to which we may be entitled in accordance with the aforementioned provision shall be treated as being assigned to us to be dealt with under the next invoice. The purchaser shall continue to have a right to enforce any such claim notwithstanding any assignment, however this shall not affect our right to enforce a claim ourselves. We agree to not enforce a claim so long as the purchaser can meet its payment obligations from the proceeds received and provided the purchaser is not on payment default, no petition for bankruptcy or liquidation has been filed and payment has not been suspended. Should this be the case then the purchaser shall on request provide us with details of any claims that have been assigned and of who the debtors are, provide all the necessary details required for collection along with the corresponding documentation, and inform the (third party) debtor of the assignment. This shall also apply in the event of the purchaser reselling, processing or mixing the goods in breach of contract.

(6) Our right to retention of title extends to all products at full value resulting from the processing or modification of our goods, whereby these procedures shall be deemed to be carried out on our behalf so that we are deemed to be the manufacturer under property law. Should any third party rights of retention survive in the course of any processing or modification of our goods on connection with goods of third parties, the purchaser agrees to grant us joint ownership to the goods in proportion to the objective value of these goods; in this case the purchaser also agrees to store the goods for us in a diligent manner. If goods to which we have retained title are joined with other moveable goods from a uniform item or are inseparably combined with other goods, whereby the other goods are deemed to be the principal goods, the purchaser hereby agrees to assign to us its right to part ownership in proportion to its ownership of the principal goods; the purchaser shall store the (part) owned goods for us. The same shall apply to goods created in this manner as to those goods delivered the title to which has been retained.

(7) As security for our claims the purchaser agrees to assign its claims against third parties resulting from the combining of the delivered goods with other property. This assignment shall rank in priority to any other security.

(8) The security to which we are entitled shall not be ascertained to the extent that the value of our security exceeds the nominal value of the claims that are to be secured by 50%; we shall be free to decide which security has been released.

(9) The purchaser must ensure that any special conditions or formalities that are required by any country of destination of the goods in order for the retention of title to be valid are fulfilled.

**§8 - Liability for Material Defects and Defects of Title**

We shall be liable for defects in goods delivered as follows, provided the purchaser has met its obligations to inspect and give notice of defects in accordance with §377 of the German Commercial Code (HGB) (whereby any notice of defects must be given in writing):

(1) If goods are defective we shall have a right to choose whether to rectify the defect or to deliver non-defective goods (subsequent performance), provided the defect is not an immaterial defect. We may refuse to remedy a defect if one or both of these methods of subsequent performance are impossible or disproportionate. In addition, we may refuse subsequent performance if the purchaser has not met its payment obligations to an extent corresponding to the non-defective portion of the goods.

(2) If subsequent performance as set out at clause 1 above is impossible or fails, the purchaser shall be entitled to choose whether to reduce the purchase price or to rescind the contract in accordance with the applicable laws; it shall apply in the case of culpable delay or refusal to carry out subsequent performance, in particular, or where subsequent performance fails for the second time. All other claims by the purchaser on whatever legal grounds shall be excluded or limited in accordance with §9.

(3) We do not accept liability for loss on the following grounds: inappropriate or improper use, defective assembly by the purchaser or a third party, fair wear and tear, defective or negligent handling, inappropriate equipment, defective construction works, an inappropriate building site, alternative materials, chemical, electrochemical or electrical influences (unless these are our responsibility), or improper alterations or repairs by the purchaser or a third party which have not been authorised by us in advance.

(4) The limitation period for claims for defects shall expire one year after delivery of the purchased goods, provided the claims are ones for which we have limited liability in accordance with §8 or §9. In the case of any goods used for a building in accordance with their usual application and which have become defective, the limitation period for claims shall expire after five years. Claims to a reduction in price and to the exercise of a right of rescission shall be excluded. If the situation set out in the third sentence of this clause applies, the purchaser may nevertheless refuse to pay the purchase price insofar as the purchaser would be entitled to do so as a result of the price reduction or contractual rescission; we shall be entitled to rescind the contract in the event of an exclusion of rescission and subsequent refusal to pay.

(5) Warranties or guarantees shall not be deemed to have been validly given unless we have given them expressly in writing.

**§9 - Rescission by the Purchaser and Miscellaneous Liability on our part**

(1) The purchaser's legal right of rescission - with the exception of cases that fall within §8 - shall be neither excluded nor limited. Likewise it is not intended to exclude or limit any legal or contractual rights or claims to which we may be entitled.

(2) We shall be liable without limit for intentional harm and gross negligence (including that of our legal representatives or agents) and for injury to life, limb or health. We shall also have unlimited liability in providing guarantees if a defect that is covered by a guarantee triggers liability. There shall also be no limit to our liability in relation to offences relating to the creation of a hazard, particularly in accordance with the German Product Liability Act (Produkthaftungsgesetz). This shall not affect any liability under the recourse principles under §478 et seq. of the German Civil Code (BGB).

(3) In the case of any other culpable breach of significant contractual duties (cardinal duties) our remaining liability shall be limited to foreseeable damage as is usual for this type of contract.

(4) All other forms of liability shall be excluded from this contract regardless of their legal grounds, in particular claims resulting from a breach of any main or ancillary duties under the contract, illegal acts and any other tortious acts.

(5) The same exclusions, limitations and exceptions shall apply in respect of claims based on fault at the time the contract was concluded.

(6) §9 shall apply analogously in the case of any reimbursement of expenses (with the exception of any reimbursement of expenses in accordance with §439 II or §635 II of the German Civil Code (BGB)).

(7) Any exclusion or limitation of our liability shall also apply to our legal representatives and agents.

(8) No reversal of the burden of proof is intended. Cardinal duties are significant duties, i.e. such duties which characterise the contract and on which the contractual partner can rely; these are therefore the significant rights and duties which are the prerequisites for contractual performance and which are indispensable in order to fulfil the contractual purpose.

**§10 - Place of performance, Jurisdiction Applicable Law, Contractual Language and Burden of Proof**

(1) The place of performance shall be the place at which the goods are dispatched (the factory or place of storage)

(2) The place of jurisdiction shall be our head office provided the purchaser is a merchant, corporate body governed by public law or a public law fund. The same shall apply if the purchaser does not have a place of jurisdiction in Germany, or if the purchaser's head office has moved abroad since conclusion of the contract, or the purchaser's head office is not known at the time at which the legal action is brought. We may, if we wish, sue the purchaser in other permissible courts of jurisdiction.

(3) This contract shall be governed by the non-harmonised law of the Federal Republic of Germany (German Civil Code (BGB), German Commercial code (HGB)). The application of UN sale of goods law (CISG) and any conflict of laws provisions under the Introductory Act to the German Civil Code (EGBGB) are expressly excluded from this contract. The contractual language is English.

(4) None of the provisions agreed in any of the terms and conditions are intended to alter the legal or common law distribution of the burden of proof.

**§11 - Miscellaneous Provisions**

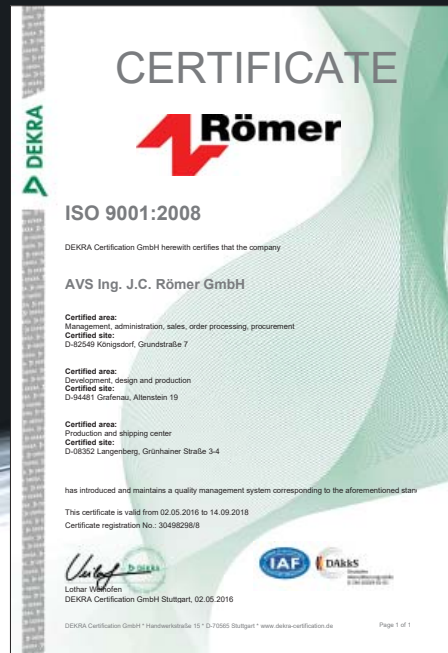
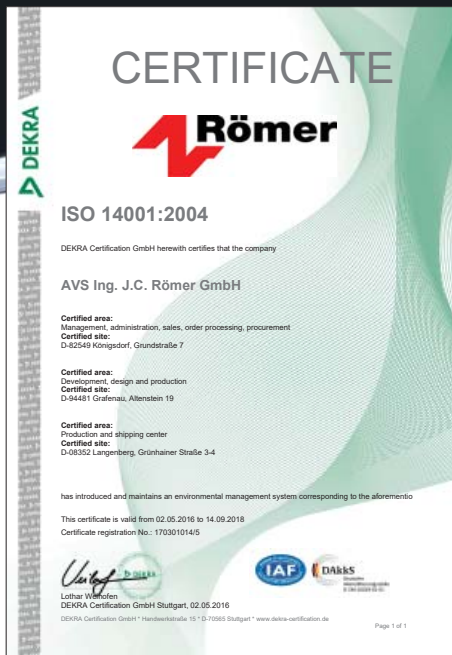
(1) Amendments to this contract shall not be valid unless agreed with us.

(2) Should any provision contained in these terms and conditions be invalid or void in part or in full, this shall not affect the validity of the remaining provisions. The contractual partners undertake to consent to a provision that achieves as best as possible the purpose of the invalid or void provision within the business sphere.

(3) We will not use any data regarding the purchaser for any purpose other than for the conclusion of business in accordance with the provisions of the relevant applicable data protection provisions. The purchaser may on written demand request access to any personal data of the purchaser that has been collected, processed or used.

(4) All terms and provisions are gender-neutral and in all other respects non-discriminatory within the meaning of the German Equality Act (AGG).

Our high quality standards have been supported by consistent quality management for 20 years.



To implement our environmental policy consistently and further improve on environmental standards achieved we have had our environmental management system certified according to international standard ISO 14001 for over ten years.

Our general terms and conditions of sale and delivery apply. Illustrations not binding. The right to make changes in design, dimensions and materials is reserved. Printing errors reserved. The rights to all drawings and text are reserved by their author AVS Ing. J.C. Römer GmbH.

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# INCITEMENT TO ADVANCE



To commemorate the person and life's work of our company founder, the non-profit Joachim Christian Römer Foundation was established in 2011. Joachim Christian Römer's lifelong efforts to develop young talent in the engineering and technical professions were continued after his death by the Foundation, including through the provision of scholarships and training. Moreover the Foundation is particularly committed to the field of fluid technology within mechanical engineering in cooperation with universities and technical and research colleges. For more information, please visit the J.C. Römer Foundation at [www.jcroemer-stiftung.de](http://www.jcroemer-stiftung.de)